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CITY COUNCIL OF SINGAPORE



ANNUAL REPORT OF THE
HEALTH DEPARTMENT
1958

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CITY HEALTH DEPARTMENT

ANNUAL REPORT FOR 1958

1958 WAS A VERY FRUITFUL and eventful year for the Department—a year when the Department was called upon to perform a variety of activities and endeavours. With elections held on the 22nd of December, 1957, the City Council for the first time in its history, was a fully elected Council with an elected Mayor. The Local Government Ordinance of 1957 came into operation and the City Limits were extended to include Pasir Panjang, West Coast Road and Clementi Road up to the junction with Bukit Timah Road. On the east side, the City Limits were readjusted to Haig Road. Altogether the approximate area of the City in square miles is 37.6.

When reading this report and appendices it must be borne in mind that the statistics quoted are uncorrected for “inward” or “outward” transfers unless otherwise stated: that patients from outside the town entering hospitals, and other institutions providing medical facilities in the town, adversely affect our Death and Infectious Diseases Rates; that the number of deaths shown as due to the various diseases must necessarily be inaccurate, as slightly over 19 per cent of the persons who die in Singapore have had no medical advice or treatment before death, and the causes of their deaths have had to be surmised by Inspecting Officers without the aid of clinical observations or autopsies.

MID-YEAR POPULATION

The 1957 census population for the City Area was based on the new City Limits and the 1958 mid-year population is estimated on the same basis.

CENSUS 1957—CITY AREA

Malaysians	..	..	100,531
Chinese	..	..	709,611
Indians and Pakistanis	..	..	79,962
Europeans	..	..	8,972
Eurasians	..	..	5,756
Others	..	..	7,511
Total	..	..	912,343

The Registrar of Statistics has supplied the following estimated mid-year population for the City for 1958.

ESTIMATED MID-YEAR POPULATION BY RACES, 1958

Malaysians	..	..	105,600
Chinese	..	..	741,400
Indians and Pakistanis	..	..	83,100
Europeans	..	..	9,600
Eurasians	..	..	5,900
Others	..	..	7,800
Total	..	..	953,500

Details concerning notifiable infectious diseases, vital statistics, etc. and the work carried out by the various sub-departments are set out in appendices as follows:—

A—Notifiable Infectious Diseases.

B—General Measures to combat spread of Infectious Diseases.

C—Birth and Still-Birth Statistics.

D—General Death Rate, Infant Mortality Rate, Neo-Natal Rates, etc., Principal Causes of Death, Death by whom certified.

E—Food Licences Issued; Abattoirs; Burial Grounds; and reports and returns from:—

- (1) Officer in charge of Anti-Mosquito Department.
- (2) Analyst.
- (3) Bacteriologist.
- (4) Senior Assistant Health Officer, Maternity and Child Welfare Department.
- (5) Superintendent, Middleton Hospital.
- (6) Superintendent of Abattoirs.
- (7) Chief Public Health Inspector.
- (8) Medical Officer in charge of Staff.
- (9) Rodent Overseer.
- (10) Infectious Diseases Nurse.

SUMMARY OF PRINCIPAL STATISTICS, 1958

BIRTHS AND DEATHS, ETC.—ALL RACES COMBINED

		1957	1958
Total births registered	.. ..	46,503	47,106
Total deaths registered	.. ..	8,405	8,272
Excess of births over deaths	.. ..	38,098	38,834
Birth Rate	.. ..	50.40	49.40
Crude Death Rate	.. ..	9.11	8.67
Malarial Death Rate	.. ..	0.009	0.002
Infantile Mortality Rate	.. ..	42.94	45.81
Neo-natal Death Rate	.. ..	19.85	22.42
Still-birth Rate per 1,000 live and still-births	.. ..	17.07	16.70
Maternal Mortality Rate per 1,000 live-births	.. ..	0.90	0.91

DEATHS BY WHOM CERTIFIED

		1957	1958
		<i>Per cent</i>	<i>Per cent</i>
Medical Practitioners	.. ..	63.70	65.56
Inspecting Officers	.. ..	20.70	19.02
Coroner	.. ..	15.60	14.96
Police Officers	.. ..	—	.46

NOTIFIABLE INFECTIOUS DISEASES IN 1958

		<i>Cases Notified</i>	<i>Deaths</i>
Tuberculosis (all forms)	.. ..	3,483 (including 488 non-residents)	532
Typhoid	.. ..	147 (including 44 non-residents)	8
Paratyphoid	.. ..	2 (including 2 non-residents)	—
Diphtheria	.. ..	545 (including 131 non-residents)	40
Leprosy	.. ..	91 (including 7 non-residents)	1
Poliomyelitis	.. ..	416 (including 161 non-residents)	13
Erysipelas	.. ..	3 (including 1 non-residents)	—
Chicken-pox	.. ..	685 (including 161 non-residents)	1
Small-pox, Cholera and Plague	.. ..	— (including — non-residents)	—

DEATHS CERTIFIED AS DUE TO SOME OF THE NON-NOTIFIABLE
INFECTIOUS AND PARASITIC DISEASES IN 1958

			1957	1958
Dysentery—Bacillary	..	..	5	6
Unspecified	..	..	6	6
Amœbic	..	..	10	12
Malaria	..	..	9	2
Influenza	..	..	73	29
Whooping Cough and Complications	..		5	2
Measles and Complications	..	..	3	26
Leptospirosis interhæmorrhagica (Weil's Disease)	..	..	1	4
Tetanus	..	..	21	41

NON-NOTIFIABLE INFECTIOUS DISEASES TREATED AT THE
MIDDLETON HOSPITAL IN 1957 AND 1958

			1957	1958	
Measles and Rubella	..	..	189	358	(Measles)
				7	(Rubella)
Whooping Cough	..	..	30	38	
Amœbic Dysentery	..	..	197	156	
Bacillary Dysentery	..	..	74	60	
Clinical Dysentery	..	..	150	92	
Mumps	..	..	14	43	

VACCINATION

			1957	1958
Age Group (0-1)	..	..	33,361	33,643
Age Group (1-5)	..	..	1,766	1,666
Age Group (5 and over)	..	..	221	196
Total vaccinated and revaccinated	..		35,348	35,505

MATERNITY AND CHILD WELFARE DEPARTMENT HOME VISITS BY
SISTERS AND HEALTH VISITORS

			1957	1958
Mothers visited by District Sisters within 10 days of confinement	..	..	18,237	16,637
Subsequent visits by District Sisters to Mothers	..		3,172	5,802
First visits by Health Visitors to new babies	..		30,939	28,343
Subsequent visits by Health Visitors to new babies	..		61,091	47,958
Visits to expectant mothers	..	..	8,724	7,128
Visits made in connection with Anti-Diphtheria Immunisation	..	..	5,696	6,654
Total visits to homes by Sisters and Health Visitors	..		127,859	112,522

ATTENDANCES AT CLINICS

			1957	1958
<i>Infants (0-1)</i>				
1st attendances	..	..	28,300	28,870
Subsequent attendances	..	..	185,460	188,699
Total attendances	..	..	213,760	217,569
Of these, attendances of sick babies	..	..	134,693	151,167
i.e. in percentage ..	..	..	63.01 %	69.48 %
<i>Preschool Children</i>				
1st attendances ..	..	..	43,915	22,400
Subsequent attendances	..	..	38,489	41,953
Total attendances	..	..	82,404	64,353
Of these, attendances of sick Toddlers	..	..	19,095	43,335
i.e. in percentage ..	..	..	22.67 %	67.34 %
<i>Expectant mothers</i>				
1st attendances ..	..	..	5,278	7,311
Subsequent attendances	..	..	14,078	18,032
Total attendances	..	..	19,356	25,343

DIPHTHERIA IMMUNISATION—COMPLETE COURSES

			1957	1958
Infants (0-1)	..	..	8,549	5,232 (Clinics) 5,046 (Mobile)
Preschool children (1-5)	..	..	20,748	9,096
Older children (5-10)	..	..	1,569	1,376

In addition 4,568 children were immunised against whooping cough as well as diphtheria and 3,559 boosting doses were given of A.P.T. making a total of 28,877.

COUNCIL FREE MIDWIFERY SERVICE

			1957	1958
Confinements attended by Council Midwives	..	..	1,305	1,411
Visits paid to cases discharged from Government Maternity Hospital three days or so after confinement			12,597	14,106
Visits subsequently paid to known cases of confinement not attended by Doctors or Midwives	..	..	116	84

CONDUCTION OF CONFINEMENTS

			1957	1958
Government Maternity Hospital	..	..	29,299	30,073
Private Maternity Homes and by Private Doctors	..	..	3,576	3,267
Private Midwives	..	..	14,566	13,310
Council Midwives	..	..	1,305	1,411
No skilled attention at confinement	..	..	628	497
Total	..	..	49,374	48,558

HEALTH OF CITY COUNCIL STAFF

(EXCLUDING SENIOR OFFICERS AS THESE ARE TREATED BY PRIVATE DOCTORS)

AVERAGE STRENGTH OF JUNIOR AND SUBORDINATE STAFF AND DAILY RATED EMPLOYEES
DURING 1958

Approximate number of Junior and Subordinate Staff stationed in Singapore including temporary staff paid out of 'Extra Clerical and Technical Assistance' Votes, and also including females. Figure supplied by Assistant Secretary (Establishment) .. 3,825

Approximate number of Daily Rated Employees stationed in Singapore including females and young persons. Figure obtained from Establishment Officer (Labour) 9,530

	Staff (a)	Daily Rated Employees (b)	Total (a) and (b)
New cases attended at dispensaries (including accidents)	14,164	44,728	58,992
Total attendances including first visits at dispensaries	23,771	90,799	114,570
Examination for physical fitness	1,010	636	1,646
Visits paid to homes by M.O. i/c. Staff	82	53	135
Cases treated by Private Doctors	1,940	15,980	17,920
Days sick leave granted (excluding leave under Workmen's Compensation Ordinance) including leave on account of Tuberculosis by:—			
(a) M.Os. i/c. Staff	14,446	63,677	78,123
(b) Private Practitioners	5,069	32,118	38,187
(c) Hospitals	7,438	24,609	32,047
Total	26,953	121,404	148,357
Leave granted under Workmen's Compensation Ordinance	756	12,378	13,134
Days leave granted on account of Tuberculosis	2,942	9,110	12,052
Average number of days sick leave, excluding leave under Workmen's Compensation Ordinance including tuberculosis leave granted per person employed in Junior, Subordinate and Daily Rated Employees and Temporary Staff in 1958	7.04	12.69	11.07

On matters of Staff the City Council made the following decision during the year:—

- (1) On the 10th of October, 1958 the practice of accepting Medical Certificates from Private Medical Practitioners for the purpose of sick leave pay for the daily rated labourers and junior monthly staff was discontinued.
- (2) On the 1st of December, 1958 the Panel of Doctors Scheme for Senior Officers was also discontinued.

As a result, all employees of the City Council are required to attend the Staff Clinics for all medical care. This increased pressure of work necessitated the increase of staff for the Clinics.

BIRTH RATE

The all time record of 50.40 in 1957 is levelled down in 1958 with a birth rate of 49.40 which is almost equivalent to that of 1956 (49.11). This 1958 figure is still high and all efforts to reduce this high birth rate should be tackled with more determination by Health Education in Family Planning.

DEATH AND INFANTILE MORTALITY RATES

The rates for the past five years are:—

	1954	1955	1956	1957	1958
Crude Death Rate	.. 10.08	9.56	8.84	9.11	8.47
Infantile Mortality Rate	.. 59.66	51.60	44.02	42.94	45.81

The crude death rate for the year of 8.47 per 1,000 population is the lowest ever recorded. There is a slight rise in the infantile mortality rate.

The population of Singapore is abnormally young as shown by the 1957 census figures for the City of Singapore:—

1957 CENSUS OF POPULATION OF SINGAPORE

CITY OF SINGAPORE

Total Population	..	..	..	912,344
By Sex { Male	..	..	..	484,324
{ Female	..	..	..	428,020
By Race—				
Chinese	..	..	..	709,595
Malaysians	..	..	..	100,537
Indians and Pakistanis	..	..	..	79,961
Others	..	..	..	22,251
By Age Group—				
0—5 years	..	..	..	187,341
6—12 years	..	..	..	158,907
13—18 years	..	..	..	96,519
19—29 years	..	..	..	163,542
30—39 years	..	..	..	112,889
40—54 years	..	..	..	131,015
55—69 years	..	..	..	52,035
70—84 years	..	..	..	9,570
85+	..	..	..	526

48.6 per cent of the population are children or schooling and 44.7 per cent are in the earning group.

The main causes of death are again Bronchitis and Pneumonia. The death rate for Tuberculosis shows a further drop. For the purpose of comparison the following table may be of interest:—

TUBERCULOSIS DEATH RATE PER 1,000 LIVING

1931	1936	1947	1951	1953	1954	1955	1956	1957	1958
3.089	2.868	2.350	1.717	1.08	1.00	1.02	.74	.70	.56

TYPHOID

103 cases were notified during the year. The cases were from various parts of the town and infection could not be traced to any particular source.

DIPHTHERIA

The incidence of this preventable disease is still high in the country, with 414 cases notified during the year. As usual, the response to immunisation by the public has been disappointing. A mobile team was formed to provide Diphtheria Immunisation to the children in kampongs and in various outlying districts. The response was reasonably good, but due to the Poliomyelitis epidemic in October, all immunisations were suspended.

During 1958, 10,278 children under one year were fully immunised by the Maternity and Child Welfare Clinics. In addition, 10,472 children in the 1—10 age group were done at the Clinics. Also 4,568 children received whooping cough and diphtheria immunisation, and with 3,559 receiving boosting doses with A.P.T., thus the total immunised was 28,877. These results will have no appreciable effect on the rising incidence of the disease.

POLIOMYELITIS

An epidemic of Poliomyelitis occurred in 1958. 255 cases were notified in the City.

In the report by the Acting Medical Superintendent of Middleton Hospital, 404 cases were treated in the hospital, of which, 393 were paralytic and 11 non-paralytic. There were 12 deaths. The epidemic commenced in late August, reaching its peak in October and gradually tailed off in December. All the cases in Singapore were admitted and treated in Middleton Hospital. This has put a great strain on the resources of the hospital. Most of the cases were children below the age of five years. A more detailed account is included in the report of the Acting Medical Superintendent of Middleton Hospital. The virus cultures done by Professor Hale (Professor of Bacteriology, University of Malaya) showed that the outbreak was caused by Type I Polio Virus.

As a result of this epidemic, the Ministry of Health decided to give Sabin Oral Vaccine for the general public, and the Maternity and Child Welfare Department was called upon to assist in this Sabin Immunisation Campaign. 5 Clerks, 10 Nurses and 1 Sister were seconded for this campaign.

MIDDLETON HOSPITAL FOR INFECTIOUS DISEASES

During the year there were 3,679 admissions with 83 deaths, a mortality rate of 2.27 per cent. The hospital continues to be used as the teaching hospital for infectious diseases for the University of Malaya.

MALARIA

The recorded death rate from malaria continues to decrease and was 0.002 per 1,000 population within the City Limits in 1958. 17 cases of malaria were reported within the City. On investigation all were found to be imported cases either from Indonesia or the Federation of Malaya. Thus, the City remained free from malaria during the year. The cost of anti-malarial control measures is approximately \$1.19 per head of population.

ANALYST'S DEPARTMENT

The City Analyst's report showed continuous increase in work during the year 1958, when a total number of 30,293 samples were examined. This is an all time record for the Department exceeding the number examined last year by 1,859—an increase of 6.5 per cent.

The excellent chemical quality of the water was maintained throughout the year.

The whole Singapore water supply is now fluorinated containing 0.7 parts per million of fluorine, and is checked daily by sampling from different points in their distribution network.

FOOD AND DRUGS EXAMINATION

Altogether 1,368 samples were taken for chemical analysis or bacteriological examinations. 749 samples were examined under the Sale of Food and Drugs Ordinance, of which 184 were found to be adulterated below standard or otherwise defective. 130,132 packages (weight 50,684½ lb.) of unsound food and drugs were surrendered and destroyed. Samples of "Chilla Mata", a kind of cosmetic used locally for painting eyebrows, were examined by the City Analyst and found to be essentially lead sulphide. The vendors surrendered all their stocks for destruction.

In the latter part of the year, unsound food from Formosa was reported in the press. This department made investigations on all the food imported from that country and found no truth in the press statement.

MATERNITY AND CHILD WELFARE DEPARTMENT

A full report by the Senior Assistant Health Officer in charge of this department is given in Appendix *E* (4). The ever increasing number of births and the peculiar pattern of the population which is a young one, have created increasing demands for more and better services rendered by this Department. and the year 1958 was a year of expansion with many developments.

A dental clinic for expectant mothers and toddlers was opened in Prinsep Street Clinic on 2nd January, 1958. It is hoped that more of such clinics will be established in the future.

B.C.G. vaccination was offered to new born infants within the first month of life, at three of our clinics. It is anticipated that this work will be extended to other centres when the necessary staff have received their training.

In fulfilment of the Mayor's expansion projects, four new creches were completed during the year. This is the first time that the City Council has embarked on such a service.

The Institute of Health was completed and officially opened by the Minister of Health in March 1958. With the establishment of the Maternity and Child Welfare Section in this Institute, the temporary clinic at Moh Guan Terrace was converted into a children's creche.

A Mobile Anti-Diphtheria Immunisation Team established in 1957 by the Health Department was brought under the control of the Maternity and Child Welfare Department in February 1958. Although the team worked under difficulties, such as transport, staff, etc., the results have been encouraging. It ceased to function when the poliomyelitis epidemic commenced in October.

During the year the services of this department were required to co-operate with other agencies in Baby Shows; the Mass Health Movement sponsored by the Mayor; and in the Geylang Fire in Lorong Koo Chye, in providing a baby feeding service and a casualty station in the refugee camps.

During the Poliomyelitis epidemic, the staff assisted in the Middleton Hospital and the "Sabin" Vaccination Campaign.

MAYOR'S PROGRAMME FOR THE YEAR

During the year the Mayor in his inauguration speech laid down a programme which included the establishment of five Public Dispensaries, three Mobile Dispensaries and four Creches. This programme was completed successfully within the time specified. Mention has already been made in the Report of the Senior Assistant Health Officer in charge of the Maternity and Child Welfare Department regarding the establishment of four Creches. Since their opening in July, there have been a total of 18,137 attendances from infants and toddlers.

For the first time in the history of the City Council, the Health Department provides an out-patient therapeutic service for the general public. Five Public Dispensaries were established at the following places:—

Upper Pickering Street.
Desker Road.
Kee Seng Street.
Prince Philip Avenue.
Upper Aljunied Road.

These dispensaries have been very well utilised with an average daily attention of patients of about 150 per day dispensary. Each patient is charged a fee of 50 cents per attendance. Only minor ailment treatment is given.

One Mobile Dispensary was commissioned for service in July and the other two in December. They visited various remote parts of the City and kampongs. The response was very satisfactory. Our difficulty is the recruitment of Doctors and qualified staff to man all the Dispensaries.

MASS HEALTH CAMPAIGN

The Mayor organised three Mass Health Campaigns—anti-spitting, anti-litter, and anti-pest, which commenced in August and ended in December. A tremendous amount of work and energy were spent during the preparation stage and during the campaign. Two Public Health Inspectors were seconded full time to organise these campaigns, and the whole department took part in the distribution of posters and propaganda. A Health Exhibition organised by the Department was held at the Victoria Memorial Hall, all the sub-departments taking part in it. The exhibition was mainly on anti-pests. The exhibition was highly successful and the exhibits were all of a very high standard.

STAFF TRAINING

Messrs. Goon Peng Yam, Charlie Chan Boon Kwang, and Wong Keng Mun were successful in obtaining the Diploma of the Royal Sanitary Institute of Health.

Messrs. R. Rajakrishna and Sunny Choo Chiang Cheng, on Colombo Plan Scholarships to New Zealand, returned in June 1958, after having obtained the Diploma of the Royal Sanitary Institute of Health Course of that country.

Dr. N. R. Tan obtained the Diploma in Public Health of the University of Malaya.

Dr. Tan Cheng Im left for U.K. in August to take a course leading to the Diploma in Child Health in Great Ormond Street Hospital.

Sister Grace Kee Soon Bee resumed duties on 5th September, 1958 after completing her Colombo Plan Scholarship training in Australia. She obtained the Fever Nursing Certificate and Ward Sister's Diploma.

STAFF

Dr. J. Cameron, Deputy Health Officer, was acting in the post of City Health Officer until 30th November, 1958 when he proceeded on leave prior to retirement under the Malayanisation Terms. We extend to him our best wishes in his future.

On my return from U.K. on vacation leave I was appointed City Health Officer with effect from 1st December, 1958, after having acted in the post of Deputy Officer for more than a year.

Mr. C. G. Clunies Ross, Senior Public Health Inspector, resigned on 15th October, 1958.

Mr. Seah Cheng Hock, Public Health Inspector, resigned on 10th October, 1958.

Messrs. K. Muthucumaru and K. Narayanan of the Anti-Mosquito Department, were medically boarded out of the service.

Mr. T. A. Spillane, City Analyst, left the service after having been in the Department for 11 years.

Dr. Ivy Chew of the Maternity and Child Welfare Department resigned from the service with effect from September.

Two Health Sisters and three Health Visitors resigned.

One Midwife was dismissed.

Mr. Lee Kwong Soon, Deputy Chief Public Health Inspector, was on sick leave prior to being boarded out of the service.

Mr. J. W. Bennett, Chief Public Health Inspector, was on leave prior to resignation on 1st January, 1959.

Dr. Diana Loh Pui Ying joined the Maternity and Child Welfare Department in November 1958.

NG SEE YOOK, L.M.S., D.P.H.,
City Health Officer.

Table 1

NOTIFIABLE INFECTIOUS DISEASES

The number of cases notified in persons who were stated to be ordinarily resident within the City Area in 1958 and in the previous five years are shown in the table which follows:—

	1953	1954	1955	1956	1957	Average for 5 years	1958
Small-pox	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..
Typhoid Fever	.. 89	.. 120	.. 100	.. 74	.. 85	.. 93.6	.. 103
Para-typhoid Fever	.. 2	..	..	.. 2	.. 1	.. 1.0	..
Diphtheria	.. 245	.. 267	.. 347	.. 425	.. 576	.. 372.0	.. 414
Cerebro-Spinal Fever	.. 5	.. 2	.. 1	.. 1	..	.. 1.8	..
Typhus Fever*	.. 9	.. 15	.. 4†	.. 5‡	.. 1 §	.. 6.8	.. 1 §
Scarlet Fever	.. 1	..	..	..	..	.. 0.2	..
Leprosy	.. 124	.. 120	.. 120	.. 115	.. 88	.. 113.4	.. 84
Poliomyelitis	.. 30	.. 53	.. 9	.. 26	.. 41	.. 31.8	.. 255
Anthrax	..	..	..	..	..	..	..
Puerperal Fever	.. 43	.. 52	.. 60	.. 64	.. 84	.. 60.6	.. 81
Erysipelas	.. 15	.. 13	.. 10	.. 3	.. 4	.. 9.0	.. 2
Chicken-pox	.. 713	.. 1,057	.. 1,687	.. 1,402	.. 980	.. 1,167.8	.. 524
Tuberculosis	.. 2,911	.. 2,580	.. 2,979	.. 2,835	.. 2,559	.. 2,772.8	.. 2,995
Total	.. 4,187	.. 4,279	.. 5,317	.. 4,952	.. 4,419	.. 4,630.8	.. 4,459

* Under the heading of Typhus are included Tsutsugamushi or Scrub Typhus of Malaya (Mite Borne) and Flea Borne (Urban Type Tropical Typhus). Louse Borne Typhus has not been seen in Singapore.

† 2 Flea Borne and 2 Mite Borne.

‡ Flea Borne.

§ Mite Borne.

Table 2

NOTIFIABLE INFECTIOUS DISEASES BY RACES FOR THE YEAR 1958

	Euro- peans	Eura- sians	Chinese	Malays	Indians	Others	Total
Typhoid Fever ..	1 (1)	— (—)	76 (26)	17 (10)	9 (6)	— (1)	103 (44)
Diphtheria ..	1 (1)	3 (—)	373 (120)	24 (5)	12 (5)	1 (—)	414 (131)
Chicken-pox ..	6 (2)	11 (7)	210 (46)	75 (17)	217 (89)	5 (—)	524 (161)
Poliomyelitis ..	3 (8)	2 (1)	203 (109)	28 (17)	19 (26)	— (—)	255 (161)
Cerebro-spinal Fever ..	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)
Tuberculosis ..	1 (1)	11 (1)	2,631 (401)	200 (62)	148 (21)	4 (2)	2,995 (488)
Para-typhoid Fever ..	— (—)	— (—)	— (—)	— (1)	— (1)	— (—)	— (2)
Small-pox ..	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)
Leprosy ..	1 (—)	— (—)	70 (6)	4 (1)	9 (—)	— (—)	84 (7)
Typhus Fever ..	— (—)	— (—)	1* (—)	— (—)	— (—)	— (—)	1* (—)
Erysipelas ..	1 (—)	— (—)	1 (1)	— (—)	— (—)	— (—)	2 (1)
Puerperal Fever ..	— (—)	— (—)	25 (—)	52 (—)	3 (—)	1 (—)	81 (—)
Cholera ..	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)
Total ..	14 (13)	27 (9)	3,590 (709)	400 (113)	417 (148)	11 (3)	4,459 (995)

* Mite borne

The figures not in brackets are of cases notified in persons ordinarily resident in the City Area.

The figures in brackets are Imported Cases and cases from Rural Board treated in Hospitals or Institutions in the City Area but not ordinarily resident in the City Area.

Table 3

NOTIFIABLE INFECTIOUS DISEASES BY MONTHS FOR THE YEAR 1958
(Figures in brackets are cases in non-residents)

Month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Typhoid Fever	8 (7)	10 (4)	11 (4)	10 (4)	18 (2)	4 (3)	9 (4)	8 (2)	8 (3)	5 (6)	2 (1)	10 (4)	103 (44)
Diphtheria	62 (14)	45 (8)	48 (14)	16 (9)	22 (16)	25 (13)	38 (13)	36 (7)	26 (13)	38 (15)	32 (7)	26 (2)	414 (131)
Chicken-pox	68 (32)	54 (12)	92 (20)	59 (16)	42 (7)	29 (15)	26 (5)	23 (11)	32 (16)	35 (14)	26 (9)	38 (4)	524 (161)
Puerperal Fever	4 (—)	5 (—)	15 (—)	5 (—)	7 (—)	5 (—)	2 (—)	5 (—)	6 (—)	13 (—)	10 (—)	4 (—)	81 (—)
Polioomyelitis	1 (—)	(—)	1 (—)	1 (—)	1 (—)	1 (1)	(—)	(—)	23 (9)	106 (65)	82 (44)	39 (36)	255 (161)
Cerebro-Spinal Fever	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)
Tuberculosis	205 (43)	136 (43)	155 (29)	128 (25)	239 (45)	179 (29)	125 (28)	148 (28)	223 (32)	579 (46)	548 (89)	330 (51)	2,995 (488)
Para-typhoid Fever	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(1)	(2)
Small-pox	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)
Leprosy	6 (1)	6 (—)	5 (2)	4 (—)	11 (—)	8 (—)	9 (—)	9 (1)	3 (1)	9 (—)	6 (2)	8 (—)	84 (7)
Typhus Fever	(—)	1 (—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)
Erysipelas	(—)	1 (—)	(—)	(—)	(—)	(—)	(—)	1 (—)	(—)	(—)	(—)	(—)	2 (1)
Cholera	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)	(—)
Total	354 (98)	258 (67)	327 (69)	223 (54)	340 (70)	251 (61)	209 (51)	230 (55)	321 (74)	785 (146)	706 (152)	455 (98)	4,459 (995)

*Typhus Mite Borne.

Table 4

POLIOMYELITIS

CONFIRMED CASES NOTIFIED IN 1958 BY RACES, SEX AND AGE GROUP
Table includes imported cases as well as those in City Residents

	Europeans			Eurasians			Chinese			Malays			Indians			Others			Total		
	M. F. T.			M. F. T.			M. F. T.			M. F. T.			M. F. T.			M. F. T.			M. F. T.		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
0- 5 years	..	..	..	1	..	1	146	124	270	24	16	40	20	19	39	..	..	..	191	159	350
5-10 "	..	2	2	..	..	..	9	11	20	1	2	3	2	1	3	..	..	..	12	16	28
10-15 "	2	..	2	..	2	2	4	..	4	..	..	..	..	..	..	..	..	..	6	2	8
15-20 "	1	..	1	..	..	..	3	..	3	1	..	1	..	..	..	..	..	..	5	..	5
20-25 "	1	..	1	..	..	..	4	2	6	..	..	..	..	..	..	..	..	..	5	2	7
25-35 "	3	2	5	..	..	..	5	1	6	2	..	2	1	1	2	..	..	..	11	4	15
35-45 "	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	1	..	1
45-55 "	..	..	..	..	..	..	1	1	2	..	..	..	..	..	..	..	..	..	1	1	2
Total ..	7	4	11	1	2	3	173	139	312	28	18	46	23	21	44	..	..	..	232	184	416

161 of the 416 confirmed cases of Poliomyelitis notified within the City Area were non-residents.

Table 5
POLIOMYELITIS CASES NOTIFIED AND CONFIRMED IN 1958
Under 5 years of age (Resident and non-resident)
Cases in Service Personnel and Families included

	0-1 year		1-2 years		2-3 years		3-4 years		4-5 years		Total under 5 years	Total over 5 years
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
Europeans	..	..	..	..	..	..	..	..	..	..	..	11
Eurasians	..	..	..	..	1	..	..	..	..	..	1	2
Chinese	47	43	61	52	24	21	9	3	6	4	270	42
Malays	8	5	14	6	2	5	..	..	..	..	40	7
Indians	7	7	9	5	4	3	..	4	..	..	39	4
Others	..	..	..	..	..	..	..	..	..	..	..	..
Total	62	55	84	63	31	29	9	7	6	4	350	66

Table 6

PERCENTAGE OF PARALYTIC AND NON-PARALYTIC POLIOMYELITIS CASES TREATED AT MIDDLETON HOSPITAL 1957 AND 1958.

			1957	1958
Total cases treated at Middleton Hospital	..	..	52	404
Paralytic cases	..	..	52	393
Non-paralytic cases	..	..	..	11
Percentage of Paralytic cases	..	..	100%	97%

Table 7

NOTIFICATIONS OF TUBERCULOSIS (ALL TYPES) JANUARY/JULY 1958
(IN CITY RESIDENTS ONLY)

Sex		AGE GROUPS							Total
		0-5 years	5-10 years	10-15 years	15-20 years	20-45 years	Over 45 years	Age not stated	
Males	..	15	7	1	43	454	353	2	875
Females	..	19	5	3	17	153	95	..	292
Total	..	34	12	4	60	607	448	2	1,167

N.B.—Figures for August to December 1958 are not available.

Table 8

INSTITUTIONS, ETC., WHENCE TUBERCULOSIS NOTIFICATIONS WERE RECEIVED

2,995 cases of Tuberculosis (all types) in City residents and 488 in non-residents, i.e. 3,483 in all, were notified during the year. 3 of these were not ordinarily resident in the Colony.

Notified by	R.S.T.C.	T.T.S. Clinic	General Hospital	Total R.S.T.C. and Hospitals	Private Practitioners	Total
Number of cases notified	1,929	1,110	74	3,113	370	3,483

Table 1

GENERAL MEASURES TAKEN TO PREVENT IMPORTATION AND
SPREAD OF INFECTIOUS DISEASES

PASSENGERS UNDER SURVEILLANCE DURING THE YEAR 1958

Number of Passenger Undertakings received	..	1,301
Number of Persons under surveillance	..	1,540
Number of Persons seen	..	1,245
Number of Persons not seen and could not be traced	..	295

Table 2

HOUSES QUARANTINED, DISINFECTED, AND INFECTIOUS CASES
REMOVED TO INFECTIOUS HOSPITAL, TRAFALGAR HOSPITAL

Houses quarantined	..	..	..	—
Houses Disinfected	..	..	..	1,346
Infectious cases removed to Infectious Hospital	..			1,168
Leper cases removed to Trafalgar Hospital	..			—

Table 3

VACCINATIONS BY CITY VACCINATORS, MEDICALMEN, PRIVATE
AND GOVERNMENT VACCINATORS
1958

—	Successful	Modified	Failed	Not seen	Total
City Vaccinators	23,396	64	9	467	23,936
Medicalmen	11,265	..	20	..	11,285
Private and Government Vaccinators	284	..	..	..	284
Total ..	34,945	64	29	467	35,505

Table 4

VACCINATION BY RACE AND AGE GROUPS, 1958

Race	Under 6 months	6-12 months	1-5 years	Over 5 years	Total
Chinese	18,215	7,570	1,443	171	27,399
Malays	3,640	1,379	166	18	5,203
Indians	1,969	587	43	5	2,604
Eurasians	151	59	8	2	220
Europeans	40	6	6	..	52
Others	24	3	..	..	27
Total ..	24,039	9,604	1,666	196	35,505

Table 1
BIRTHS AND STILL-BIRTHS

The following is the number of births for each month of the year, 1957 figures being also shown:—

Month	1958	1957	Month	1958	1957
January	3,864	3,912	July	4,735	3,820
February	2,984	3,525	August	3,863	3,828
March	2,862	3,669	September	3,452	3,899
April	4,713	3,737	October	4,926	4,329
May	4,109	4,105	November	4,030	4,248
June	3,413	3,520	December	4,155	3,911
Total ..	21,945	22,468	Total ..	25,161	24,035

Table 2

The births registered by races were:—

	1958			1957		
	Males	Females	Total	Males	Females	Total
Europeans	451	410	861	187	182	369
Eurasians	138	165	303	178	155	333
Chinese	18,480	17,209	35,790*	18,806	17,557	36,367†
Malays	2,786	2,640	5,426	2,546	2,303	4,849
Indians	2,125	2,048	4,174‡	2,172	2,025	4,198§
Others	294	258	552	203	184	387
Total ..	24,274	22,830	47,106	24,092	22,406	46,503

* Includes 1 Chinese sex unknown.

‡ Includes 1 Indian sex unknown.

† Includes 4 Chinese sex unknown.

§ Includes 1 Indian sex unknown.

Table 3

The birth rate for each race in 1958 and the corresponding rate for 1957 are shown in the table which follows:—

	1958	1957
Europeans	89.69	95.96
Eurasians	51.36	52.64
Chinese	48.27	50.43
Malays	51.38	53.97
Indians	50.23	52.19
Others	70.27	73.49
All Races Combined ..	49.40	42.94

Table 4

The table which follows, shows the number of live-births by race and sex that occurred at the Kandang Kerbau Maternity Hospital in 1958 and also the percentage of the total registered live-births of each race born at this hospital:—

	1958			Percentage of total births registered by race born at Kandang Kerbau Maternity Hospital	
	Males	Females	Both Sexes	1958	1957
Chinese	12,887	12,078	24,965	69.75	63.22
Indians	1,611	1,557	3,168	75.90	71.61
Malays	570	544	1,114	20.53	15.26
Europeans	103	92	195	22.65	62.33
Eurasians	95	123	218	71.95	63.66
Others	153	114	267	48.37	53.75
Total All Races ..	15,419	14,508	29,927	63.53	58.90

N.B.—Besides the 195 Europeans born at this Hospital 577 (or 67.01) more were born at the British Military Hospital.

Table 5

The percentage of the total births registered by races in the Census years 1911, 1921, 1931, 1947 and in 1953—1958 is shown in the table which follows:—

Year	Total Births	Chinese	Malays	Indians	Other Races	Percentage of Total Births			
						Chinese	Malays	Indians	Other Races
1911 ..	5,560	3,750	1,051	406	353	67.4	18.8	7.3	7.52
1921 ..	10,237	7,789	1,270	640	538	76.0	12.4	6.2	5.26
1931 ..	16,488	13,229	1,758	917	584	80.23	10.66	5.56	3.54
1947 ..	30,548	24,247	3,233	2,323	745	79.3	10.5	7.6	2.44
1953 ..	39,322	31,076	4,062	3,387	798	79.03	10.33	8.61	2.03
1954 ..	40,935	32,018	4,466	3,468	983	78.22	10.91	8.47	2.40
1955 ..	42,090	32,830	4,564	3,650	1,046	78.00	10.84	8.67	2.49
1956 ..	44,044	34,500	4,679	3,801	1,064	78.33	10.62	8.63	2.42
1957 ..	46,503	36,367	4,849	4,198	1,089	78.20	10.43	9.03	2.34
1958 ..	47,106	35,790	5,426	4,174	1,716	75.98	11.52	8.86	3.64

Table 6

The Still-births registered in 1958 and 1957 are shown in the table which follows:—

			1958			1957		
			Males	Females	Total	Males	Females	Total
Europeans	..	..	2	3	5	1	..	1
Eurasians	..	..	2	2	4	3	2	5
Chinese	..	..	259	244	503	275	246	524*
Malays	..	..	85	77	164†	78	64	142
Indians	..	..	43	65	108	53	58	111
Others	..	..	11	5	16	6	5	11
Total ..			402	396	800	416	375	794

* Includes 3 Chinese sex unknown.

† Includes 2 Malays sex unknown.

Table 7

The percentage of illegitimate births over live-births was .08 for the year 1958 and the table below shows the sex and racial groups of mothers:—

				Male	Female	Total
Europeans	..	..	..	1	..	1
Eurasians	..	..	..	1	1	2
Chinese	..	..	..	10	17	27
Malaysians	..	..	..	1	1	2
Indians and Pakistanis	..	..	..	2	2	4
Others	..	..	..	1	2	3
Total ..				16	23	39

Table 1
DEATHS

The following return show the number of deaths and the death rate for each month of the year:—

Month			No. of Deaths	Death Rate	Month			No. of Deaths	Death Rate
January	..	..	682	8.43	July	..	..	733	9.06
February	..	..	578	7.90	August	..	..	686	8.48
March	..	..	720	8.90	September	..	..	741	9.46
April	..	..	620	7.92	October	..	..	770	9.51
May	..	..	689	8.51	November	..	..	679	8.66
June	..	..	736	9.40	December	..	..	638	7.88

Table 2

The chief causes of death and the rate per 1,000 living for each disease in 1958 and 1957 are set in the table which follows:—

			1958		1957	
			Cases	Rate per Mille	Cases	Rate per Mille
Bronchitis and Pneumonia	..	..	1,018	1.07	1,042	1.13
Tuberculosis	..	..	532	0.56	650	0.70
Diarrhoea and Enteritis	..	..	486	0.51	491	0.53
Diseases of early Infancy	..	..	928	0.97	857	0.93
Infantile Convulsions (up to 5 years)	..	..	120	0.13	149	0.16
Violence	..	..	541	0.57	574	0.62
Heart Disease	..	..	593	0.62	722	0.78
Old Age	..	..	456	0.48	502	0.54
Cancer	..	..	631	0.66	650	0.70
Nephritis	..	..	186	0.19	208	0.23
Beri-Beri	..	..	54	0.06	117	0.13
Diphtheria	..	..	40	0.04	63	0.07
Malaria	..	..	2	0.002	9	0.009
Dysenteries	..	..	24	0.025	21	0.02
Typhoid	..	..	8	0.008	5	0.005
Cerebral Hæmorrhage and other vesicular leisons	..	..	399	0.42	420	0.46

Table 3

SINGAPORE DEATH REGISTERED IN 1958 IN CITY AREA BY AGE, RACIAL GROUP AND SEX

	TOTAL		CHINESE		MALAYSIANS		INDIANS AND PAKISTANIS		EUROPEANS		EURASIANS		OTHERS	
	M. and F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Under 1 day	258	149	109	109	65	22	26	8	10	7	4	1	3	1
1 day and under 2 days	179	112	67	83	44	20	11	6	10	..	..	1	2	..
2 days and under 3 days	125	76	49	55	35	14	12	5	2	..	..	1	2	..
3 days and under 4 days	*89	60	28	39	19	13	3	5	4	2	1	..	2	1
4 days and under 5 days	56	31	25	20	15	8	8	3	2	..	..	..	..	..
5 days and under 6 days	40	23	17	16	13	5	1	1	2	1	..	..	1	..
6 days and under 7 days	43	22	21	17	14	3	5	2	1	..	..	..	..	..
7 days and under 14 days	135	95	42	64	32	20	6	7	2	..	1	..	2	1
14 days and under 21 days	66	48	18	35	11	7	4	5	2	..	1	..	..	..
21 days and under 28 days	64	40	24	27	15	9	6	4	3	..	..	..	..	..
Neo-Natal Deaths	*1,055	654	400	465	263	121	82	46	38	11	8	2	6	3
28 days and under 2 months	196	109	87	71	57	24	18	13	10	..	2	..	..	..
2 months and under 3 months	155	85	70	55	50	23	16	5	4	..	..	..	1	..
3 months and under 4 months	111	60	51	36	33	19	9	4	7	..	1	1	..	..
4 months and under 5 months	116	56	60	32	41	17	12	4	6	1	..	..	2	..
5 months and under 6 months	90	47	43	30	26	13	12	4	4	..	..	..	..	1
6 months and under 7 months	105	57	48	36	36	16	10	3	2	..	..	1	..	..
7 months and under 8 months	80	35	45	22	23	9	17	3	4	..	..	..	1	..
8 months and under 9 months	75	45	30	34	19	8	8	3	2	..	1	..	..	..
9 months and under 10 months	70	37	33	27	20	8	9	2	3	..	..	..	1	..
10 months and under 11 months	57	23	34	18	26	4	7	1	..	..	..	..	..	..
11 months and under 1 year	49	22	27	11	11	10	15	1	1	..	..	..	..	..
Infant Mortality†	*2,159	1,230	928	837	605	272	215	89	81	12	12	4	10	5

*Includes 1 of unknown sex (Chinese).

†Includes neo-natal deaths.

Table 3—continued

SINGAPORE DEATH REGISTERED IN 1958 IN CITY AREA BY AGE, RACIAL GROUP AND SEX

	TOTAL			CHINESE		MALAYSIANS		INDIANS AND PAKISTANIS		EUROPEANS		EURASIANS		OTHERS	
	M. and F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Under 1 year	*2,159	1,230	928	837	605	272	215	89	81	12	12	4	10	16	5
1 year and under	347	189	158	129	111	47	28	11	15	2	2	2	1	..	1
2 years and under	190	100	90	75	77	17	7	8	6	..	..	..	..	..	..
3 years and under	122	61	61	48	50	7	10	3	1	1	1	1	..	1	..
4 years and under	88	59	29	50	24	6	4	2	1	1	1	..	..	..	..
5—9 years	211	109	102	87	72	13	20	6	8	1	1	1	..	1	2
10—14 years	114	74	40	27	27	9	7	4	5	..	..	1	..	1	1
15—19 years	121	72	49	59	31	7	11	1	5	3	3	1	2	2	..
20—24 years	131	80	51	56	27	10	17	6	6	6	6	..	..	2	1
25—29 years	170	98	72	59	47	15	17	10	5	8	8	1	..	5	3
30—34 years	176	108	68	64	53	18	11	15	3	4	4	3	..	4	..
35—39 years	232	148	84	94	59	7	13	37	9	5	1	2	1	3	1
40—44 years	342	217	125	145	105	22	15	37	3	8	1	5	..	3	1
45—49 years	466	333	133	247	109	28	13	49	8	2	1	2	1	2	1
50—54 years	587	430	157	334	128	22	18	62	8	6	1	3	3	3	..
55—59 years	604	427	177	333	143	29	21	55	10	7	..	1	1	2	2
60—64 years	623	423	200	355	172	34	19	25	7	5	1	1	1	3	..
65—69 years	577	353	224	298	203	18	10	25	7	6	1	3	1	3	2
70—74 years	452	240	212	206	200	17	7	10	4	2	..	2	1	3	..
75—79 years	270	130	140	110	135	8	2	8	2	1	..	1	1	2	..
80—84 years	158	62	96	51	87	8	6	1	..	1	1	1	3	..	2
85 years and over	120	35	85	24	67	8	13	3	1	..	..	..	2	..	..
Unknown	†12	5	1	1	..	..	1	3	..	..	..	..	..	1	..
Total	†8,272	4,983	3,282	3,722	2,532	622	485	470	195	79	20	35	28	55	22

*Includes 1 of unknown sex (Chinese).

†Includes 6 of unknown sex (Others).

‡Includes 7 of unknown sex.

Table 4

INFANTILE MORTALITY BY RACES, 1949-1958

Year		Europeans	Eurasians	Chinese	Malays	Indians	Others	All Races
1949	..	19.3	38.7	74.3	122.7	82.1	109.5	79.18
1950	..	18.9	53.0	87.4	145.8	71.3	65.9	91.22
1951	..	21.7	41.1	73.7	130.4	68.5	158.2	78.79
1952	..	35.7	45.6	71.0	120.8	64.9	102.6	75.34
1953	..	21.7	64.6	66.7	116.7	63.8	127.3	71.54
1954	..	29.5	37.2	52.5	110.4	64.3	68.1	59.66
1955	..	12.2	36.7	45.0	106.9	47.7	43.6	51.60
1956	..	9.3	27.8	38.8	96.0	34.7	21.5	44.02
1957	..	10.8	27.0	37.1	89.7	42.2	49.1	42.94
1958	..	27.9	46.2	40.3	89.7	40.7	38.0	45.81

Table 5

The main causes of death in infants and the rate per 1,000 live-births for each disease in 1958 and 1957 are set in the table which follows:—

			1958		1957	
			Cases	Rate per Mille	Cases	Rate per Mille
Congenital syphilis	..	..	5	0.11	10	0.22
Pneumonia and Bronchitis	..	..	346	7.34	330	7.10
Diarrhœa and Enteritis	..	..	325	6.90	321	6.90
Congenital Malformations	..	..	156	3.31	112	2.41
Diseases of Early Infancy	..	..	928	19.70	857	18.43
Tetanus	..	..	8	0.17	3	0.06
Beri-beri	..	..	13	0.28	11	0.24
Tuberculosis	..	..	7	0.15	13	0.28
Ill-defined and unknown causes	..	..	162	3.44	153	3.29
Other diseases	..	..	209	4.37	187	4.02

Table 6

1958 INFANTILE MORTALITY ACCORDING TO RACE, SEX AND AGE GROUPS

Race	Sex	AGE GROUP								
		0-1 Day	1-7 Days	1-4 Weeks	0-4 Weeks	4 Weeks- 3 Months	3-6 Months	6-9 Months	9-12 Months	0-12 Months
Europeans	{ M. F.	7 4	3 1	1 3	11 8	.. 2	1 1	.. 1	.. ..	12 12
Eurasians	{ M. F.	1 3	1 3	.. ..	2 6	.. ..	1 2	1 ..	.. 2	4 10
Chinese	{ M. F.	109 65	213 126	143 72	465 263	126 107	98 100	92 78	56 57	837 605
Malays	{ M. F.	22 26	60 35	39 21	121 82	47 34	49 33	33 35	22 31	272 215
Indians	{ M. F.	8 10	20 20	18 8	46 38	18 14	12 17	9 8	4 4	89 81
Others	{ M. F.	2 1	5 1	2 1	9 3	3 ..	2 1	2 1	.. ..	16 5
Total Races	{ M. F.	149 109	302 186	203 105	654 400	194 157	163 154	137 123	82 94	1,230 928
Total	..	258	489*	308	1,055*	351	317	260	176	2,159*

*Includes 1 Chinese sex unknown.

Table 7
NEO-NATAL RATES BY RACES AND SEX (1956-58)

		1958			1957			1956		
		Males	Females	Both Sexes	Males	Females	Both Sexes	Males	Females	Both Sexes
Europeans	.. ..	24.02	19.37	21.81	5.35	5.49	5.42	6.21	6.25	6.23
Eurasians	.. ..	14.49	36.59	26.49	22.47	7.84	18.02	21.16	22.22	21.60
Chinese	.. ..	25.09	15.19	20.34	21.22	14.58	18.01	25.35	15.15	20.43
Malays	.. ..	43.69	31.11	37.56	32.60	35.61	34.03	41.89	29.11	35.69
Indians	.. ..	21.69	18.62	20.18	18.88	19.75	19.29	24.68	14.23	19.47
Others	.. ..	31.25	12.20	22.47	39.41	32.61	36.18	9.17	9.48	9.53
Total	..	26.90	17.53	22.40	22.25	17.27	19.85	26.73	16.49	21.77

ANTI-MOSQUITO DEPARTMENT

I HAVE THE HONOUR to submit the report on the work of the Anti-Mosquito Department for the year 1958.

2. *Incidence of Malaria*

17 cases of Malaria within the City were reported. All these cases were thoroughly investigated and all were found to be imported cases either from Indonesia or the Federation of Malaya. The malaria death rate was .002 per thousand within the City Limits.

3. *Trapping of Adult Mosquitoes*

The 3 mosquito traps set in various parts of the City for the collection and identification of adult mosquitoes, continued to provide a valuable check on our malarial control measures. For details, see Appendix A.

4. *Larvæ Searching*

8,498 collections of mosquito larvæ were brought by the field staff to the departmental laboratory for identification. As in the past a close watch for breeding of *A. sundaicus* was kept on all boats brought into the Singapore and Kallang Rivers for repairs. No breeding was found in any of the boats. Appendix B is an analysis of 1,000 consecutive larval collections during the year showing the common breeding places within the City. Appendix C gives the total number of collections and the different vector species with their respective breeding places.

5. *Permanent Anti-Malarial Works*

The areas under permanent control were extended by the construction of 220 yards of concrete anti-malarial drains and the laying of 392 yards of subsoil pipe lines. In addition, 2,097 yards of worn-out anti-malarial drains were reconstructed with new materials. Details of permanent anti-malarial works are listed in Appendix D. Minor repairs to existing permanent anti-malarial works were carried out as and when required and details of these are given in Appendix E.

6. *Prawn Ponds in Kallang Basin*

Weekly inspections continued as in past years, to ensure that sluice gates were opened and algal growth in ponds removed. No breeding of *A. sundaicus* was found during the year.

7. *Kampong Sanitation*

Our existing kampong sanitation drains were regularly maintained by the Kampong Sanitation Labour Force. Drainage for 10 new standpipes was provided during the year and the damaged bases of 30 existing standpipes were reconstructed and new drainage established. For details of Kampong Sanitation Works, please see Appendix F.

8. *Maintenance*

Maintenance work by 10 gangs and 4 machine units, was continued in accordance with past practice. Five patrol gangs worked around the General Hospital, Tan Tock Seng Hospital, Kallang Basin, Tanjong Rhu, Siglap.

Katong and Geylang areas mainly to control the breeding of *A. sundanicus*. Altogether 172,773 yards of concrete drains and 21,528 yards of earth drains were regularly maintained.

31,888 yards of concrete drains were daily cleansed satisfactorily by contract labour at a monthly cost of \$11,000. These drains were no longer functioning as anti-malarial drains. They served as sullage drains for developed areas. 5,388 baskets of tins and other water-bearing receptacles were collected and disposed of.

9. *Larvicidal Works*

(i) *Anti-Malarial Mixture*.—Altogether 103,302 gallons of anti-malarial mixture were used. To ensure that the anti-malarial mixture received was effective and according to specifications, regular field and laboratory tests were carried out. In several instances the mixture was found to be wanting. The supplier was warned and some adjustment had to be made to increase the toxic effect of the mixture.

Apart from the routine oiling, the department had to deal with many mosquito breeding places created through development of properties, damaged and blocked public and private roadside drains and the activities of squatters in kampongs.

Oiling was also carried out in the water-logged areas caused by the interference with drainage by the building of temporary dwellings in approved attap areas.

(ii) *Shell Malariol Emulsion*.—72 gallons were used in places where an oily larvicide was undesirable.

(iii) *Shell Malariol H.S.*—306 gallons were used in fish and vegetable ponds in Sungei Whampoa and the Kallang Basin Areas.

(iv) *B.H.C. (Gammexane P. 520)*.—237 lb. were used against nuisance mosquito breeding in septic tanks and blocked concrete drains.

(v) *Kerosene with 5 per cent D.D.T.*—6 gallons were used for barrier spraying and as an anti-fly measure.

(vi) *Benzine with 10 per cent D.D.T.*—1,306 gallons were used along the margins of the reservoirs. Malaria vectors (*A. maculatus* and *A. letifer*) were found breeding in the creeks of MacRitchie Reservoir. Periodical oiling with D.D.T. in benzine had to be carried out by this department. The cost was recovered from the Water Engineer's Department.

(vii) *Dieldrex 15*.—37 gallons were used through the Swing-fog machines against adult mosquitoes.

10. *Filling in of low-lying areas*

The filling of the extensive tidal swamp at Kolam Ayer Lane was continued by controlled tipping by the City Cleansing Department.

11. *Notices*

43 notices under the Destruction of Mosquitoes Ordinance were served. The majority of these were served on building contractors.

12. *Anti-fly Measures*

Our oilers helped to carry out anti-fly measures on many occasions.

13. *Training.*

(i) Probationary Public Health Inspectors Lawson Wong, Yap Kim Seng and Ong Chow Keng were under training in the department on anti-mosquito measures and in the bionomics and taxonomics of Malayan mosquitoes.

(ii) Mr. Lawrence Png Boon Hee who was appointed as Probationary Supernumerary Laboratory Assistant was sent for training in the University of Malaya under Professor A. Sandosham, in all subjects pertaining to mosquitoes.

14. *Layout Plans*

484 layout plans from the Planning Officer, Singapore Improvement Trust, were referred for our opinion on the problem of drainage. In all cases the sites were inspected and comments given.

15. *Staff*

(i) This department lost the valuable and faithful services of Messrs. K. Muthucumaru and K. Narayanan. Mr. K. Muthucumaru is on leave prior to being medically boarded out of the City Council service with effect from 7th April, 1959. Mr. K. Narayanan was medically boarded out on 15th November, 1958. The post of Anti-Mosquito Inspector which he held is still vacant.

(ii) Dr. Ng See Yook was in charge of this department up to 23rd July, 1958 and was succeeded by Dr. Ling Ding Seng. With the abolition of the post of Deputy Health Officer, the Assistant Health Officer now deals directly with the City Health Officer in anti-mosquito control measures.

16. *Labour*

Authorised Labour Force	...	...	607
Average monthly strength in payroll	...	...	567
Percentage of shortage	...	...	6%
No. of working days in 1958	...	...	313
No. of man-days taken as sick leave	...	...	5,526
No. of man-days taken as annual leave	...	...	3,307
No. of man-days taken as public holidays	...	...	6,733

420 different labourers took sick leave on at least one occasion during the year. This meant that 74.1 per cent of the total labour force went on sick leave at least once during the year. The average number of man-days lost per labourer on account of sickness was 9.7 days.

17. *Miscellaneous*

(i) This department encountered a great deal of difficulty in the control of mosquitoes in the Tanjong Rhu Reclamation Area. The non-provision of a tidal-gate at the outlet of the newly-constructed main drain along Tanjong Rhu Road turned adjoining low-lying area water-logged. The inadequate drainage was referred to the Government and the non-provision of tidal-gate to the City Engineer's Department requesting them to take appropriate measures to improve the drainage condition.

(ii) A close liaison was maintained with the Rural Health Authorities, the Harbour Board, the Malayan Railways Authorities and the Army Department, all concerned with the control of mosquito breeding.

(iii) Due to the development of an area by a private person at Dyson Road about 110 yards of the existing concrete anti-malarial drain was illegally backfilled. Summary action was taken against the developer who was fined \$200 and was ordered to expedite development.

(iv) In the month of April, due to the complete destruction by fire of a Kampong at Lorong 3, Geylang, hundreds of people were rendered homeless. They were temporarily housed at the Geylang English School. In a week's time, the infestation of flies, mosquitoes and other pests had increased to

such a magnitude that this department was called upon to carry out intensive fogging operations with "Dioldrex 15" to kill the pests. The fogging operation was a great success.

(v) This department participated actively in the Anti-Litter and Anti-Pest Exhibitions held at the Victoria Memorial Hall. Some staff also volunteered in the distribution of pamphlets for the Mass Health Movement to the public in various areas of the City.

(vi) In December, Medical Officers from the Rural Health Department and the Assistant Health Officer (A.M.D.) discussed the taking over of the City Extension at Pasir Panjang, Ulu Pandan and Bukit Timah areas (totalling $11\frac{1}{2}$ sq. miles) and the handing over of Katong (part) and Serangoon (part) areas (totalling $3\frac{1}{2}$ sq. miles) to the respective District Councils.

(vii) The cost of malaria control per head of population within the City Limits was \$1.13 for the year.

SUMMARY OF WORKS AND COSTS FOR 1958

Particulars	Labour	MATERIALS			Total
		Mason	Machine	Larvicide	
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Major Works including $\frac{1}{3}$ cost of Store Labour ..	145,557 80	37,132 44	..	..	182,690 24
Patrol Works including Tidal-Gate Labourers ..	141,238 49	..	..	..	141,283 49
MAINTENANCE					
1. Grass cutting, cleansing drains, including hire and benzine ..	332,805 50	..	4,211 73	..	337,017 23
2. Larvicidal works, trappers, oiling checkers and $\frac{1}{3}$ cost of Store Labour ..	114,873 17	..	..	66,885 88	181,759 05
3. Repairs including $\frac{1}{3}$ cost of Store Labour ..	46,360 42	33,563 39	..	..	79,923 81
4. Cleansing of drains by Contract Labour ..	132,000 00	..	..	..	132,000 00
Total ..	912,835 38	70,695 83	4,211 73	66,885 88	1,054,628 82
Cost of Haulage ..	..	..	..	..	27,864 73
Grand Total ..	..	..	..	..	1,082,493 55

I have the honour to be,
Sir,
Your obedient servant,

LING DING SENG, M.B.B.S., D.P.H.,
Assistant Health Officer (A.M.D.).

Mosquito traps were set in the following areas with the results indicated below:—

Locality	No. of Nights	<i>A. mac.</i>	<i>A. sund.</i>	<i>A. letifer</i>	Other <i>Ano- phel.</i>	Others	Total
Dunman Road ..	42	Nil.	Nil.	Nil.	1	574	575
Kolam Ayer Lane ..	63	Nil.	Nil.	Nil.	9	849	858
Towner Road ..	48	Nil.	Nil.	Nil.	1	522	523
Guillemard Road ..	21	Nil.	Nil.	Nil.	2	308	310
Goodman Road ..	25	Nil.	Nil.	Nil.	2	297	299
Tanjong Rhu Area ..	94	Nil.	Nil.	Nil.	1	1,374	1,375
Kampong Bugis ..	8	Nil.	Nil.	Nil.	..	99	99
St. Georges Road ..	70	Nil.	Nil.	Nil.	..	1,071	1,071
Middleton Hospital ..	22	Nil.	Nil.	Nil.	..	182	182
Soon Wing Road ..	91	Nil.	Nil.	Nil.	23	1,562	1,585
Serangoon Road ..	48	Nil.	Nil.	Nil.	3	798	801
St. Francis Road ..	84	Nil.	2	Nil.	..	1,007	1,009
Beng Wan Road ..	35	Nil.	Nil.	Nil.	5	466	471
Potong Pasir Road ..	35	Nil.	Nil.	Nil.	..	371	371
Katong Park ..	63	Nil.	Nil.	Nil.	6	867	873
Aljunied Road ..	35	Nil.	Nil.	Nil.	10	613	623
Bendemeer Area ..	35	Nil.	Nil.	Nil.	9	747	756
Topez Road ..	35	Nil.	Nil.	Nil.	39	506	545
	..	Nil.	2	Nil.	11	12,213	12,326

2 *A. sundaicus* and 107 other Anopheline females were trapped. In addition 12,213 adult mosquitoes were identified. Daily reports on adult catches were forwarded to the D.A.D.A.H., Headquarters Singapore Base District for information as requested.

15th January, 1959.

P. V. SAMUEL,
Laboratory Assistant (A.M.D.).

1,000 consecutive collections from common breeding places:—

Roadside concrete drain	..	190
Sullage concrete drain ..	..	28
Sullage earth drain ..	..	3
Concrete drains ..	..	109
Earth drain ..	..	64
Sewage excavations ..	..	2
Trench ..	..	2
Excavation for scrap metal ..	..	12
Stagnant pools ..	..	165
Grassy pools ..	..	46
Seepages ..	..	5
New building excavation ..	..	36
Lorry tracks ..	..	6
Vegetable ponds ..	..	27
Fish ponds ..	..	3
Ponds ..	..	29
Hyacinth ponds ..	..	4
Swimming pools ..	..	2
Water Storage Tank ..	..	1
Buffalo Wallow ..	..	1
Sump pits ..	..	6
Earth wells ..	..	18
Concrete wells ..	..	7
Concrete holes ..	..	7
Septic tanks ..	..	8
Concrete tanks ..	..	11
Water stop cock pits ..	..	17
Sewage manhole covers ..	..	6
Boats ..	..	17
Steel pipe joints ..	..	2
Disused tins ..	..	67
Disused drums ..	..	36
Disused jars ..	..	24
Disused tyres ..	..	29
Disused bucket ..	..	1
Coconut shells ..	..	1
Filters ..	..	1
Concrete tubs ..	..	4
W.C. water tank ..	..	1
Iron tubs ..	..	2
Total ..		<hr/> 1,000 <hr/>

P. V. SAMUEL,
Laboratory Assistant (A.M.D.).

15th January, 1959.

APPENDIX C

8,498 collections of mosquito larvae were brought to the laboratory for identification. 2 of them contained larvae of *Anopheline sunndaicus*, 8 contained larvae of *Anopheline maculatus* and 1 contained larvae of *Anopheline letifer*. The other 8,487 collections did not contain larvae of malaria vectors.

The types of breeding places in which the larvae of malaria vectors were found were as follows:—

<i>A. sunndaicus</i>			<i>A. maculatus</i>		
Earth drain	..	1	<i>In Singapore</i>		
Stagnant pool	..	1	Earth Well	..	1
		<hr/> 2 <hr/>			
<i>A. letifer</i>			<i>In Gunong Pulai Water Works</i>		
Edge of creek in MacRitchie			Pool in Estate Ravine	..	3
Reservoir	..	1	Estate Reservoir	..	2
			Water tank in Estate	..	2
			Total	..	<hr/> 8 <hr/>

P. V. SAMUEL,
Laboratory Assistant (A.M.D.).

15th January, 1959.

PERMANENT ANTI-MALARIAL WORKS CARRIED OUT DURING 1958

Area No.	Anti-Malarial Area	MATERIALS USED																				Labour Cost	Material Cost	Remarks			
		INVERTS										SLABS						SUB-SOIL PIPES									
		21"		18"		15"		12"		9"		18"		15"		12"		8"		6"					4"		
N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R						
7	Glencaird	290	50	..	..	..	..	..	..	..	..	2,000	100	..	..	..	..	..	..	..	..	..	\$ c.	\$ c.	Re-construction of the drain concrete Anti-Malarial Drain was completed.	
50	Tanglin Barracks No. 1 ..	1,155	..	10	..	..	..	10	..	55	..	3,850	..	696	..	1,300	..	5	..	160	..	..	..	29,904 83		11,966 00
101	MacPherson Road ..	107	..	230	82	1,514	147	19	..	76	..	336	..	735	..	104	100	64,317 03		5,663 74	The Main concrete Drain and the Subsidiary drain, bounded by Upper Serangoon Road, Upper Aljunied Road, Sennett Estate and Bidadari Cemetery were completed.
107	Wayang Satu	814	..	440	..	..	..	175	..	..	..	6,616	..	..	..	476	..	10	..	134	..	..	..	32,828 85		15,014 55
134	Bendemeer .. ..	..	..	..	..	..	..	40	252	55	..	600	..	..	..	..	..	..	..	..	..	..	2,050 25	1,110 86		The re-construction of the subsidiary concrete Anti-Malarial Drain was completed.

DETAILS OF REPAIRS CARRIED OUT TO THE EXISTING ANTI-MALARIAL WORKS (1958)

Anti-Malarial Area		MATERIALS USED																		Labour Cost	Material Cost					
		INVERTS						SLABS						SUB-SOIL PIPES												
		21"		18"		15"		12"		9"		18"		15"		12"		8"				6"		4"		
		N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R			N	R	N	R	
1. Anderson Road	20	..	..	..	102	..	15	..	..	..	25	45	..	..	..	..	..	..	..	..	..	..	105	60	332	15
5. Cluny Ravine	70	..	..	..	..	..	20	..	..	..	120	190	..	..	..	..	..	..	..	..	..	..	425	22	579	59
8. King's Road Tyersall	..	..	105	..	..	..	..	..	..	..	150	224	..	..	..	..	..	..	..	..	..	..	559	67	543	35
9. Nassim and Dalvey	10	..	..	..	..	..	..	..	..	..	126	432	..	..	..	..	..	..	..	..	..	..	992	55	159	90
10. Fern Hill	..	..	..	..	..	..	30	..	5	..	35	82	175	..	..	..	..	..	..	..	..	..	230	01	289	51
15. Woodleigh Filters	..	..	45	..	..	..	5	..	..	..	40	30	..	..	..	..	..	..	..	..	..	..	196	93	192	31
17. Chandu Factory	5	..	..	..	..	..	3	..	..	..	10	40	..	..	..	..	..	..	..	..	..	..	51	05	45	09
19. Singapore Harbour Board Ravine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	334	73	69	12
24. Leonie Hill Road	..	..	15	10	20	30	30	..	10	5	..	40	..	..	..	50	..	..	..	..	..	..	505	27	215	46
25. Morse Road Ravine	..	..	20	15	20	..	5	..	..	..	50	110	..	..	..	..	..	..	..	..	..	..	393	35	234	64
27. One Tree Hill	150	..	..	..	..	..	..	..	..	..	290	120	..	..	..	..	..	..	..	..	..	..	770	12	1,296	67
31. Paya Goyang	..	..	..	..	90	250	140	80	20	..	30	150	40	..	..	..	..	..	..	..	..	..	498	80	491	29
32. Radin Mas	194	5	15	5	..	..	100	75	30	25	680	800	..	..	..	..	..	..	..	..	..	..	1,906	26	1,895	84
34. Shanghai Road	..	..	105	20	5	3	125	10	65	5	100	100	..	..	..	..	..	..	..	..	..	..	549	80	746	38
35. Tiong Bahru	..	..	..	..	..	..	15	25	30	25	225	130	..	..	..	..	..	..	..	..	..	..	272	48	168	28
36. Wishart	165	15	..	..	..	15	20	30	5	..	335	220	..	..	..	3	..	..	..	..	..	..	1,375	22	1,155	76
37. Woodneuk	..	..	20	86	20	..	..	..	..	..	50	..	..	..	..	..	..	..	..	..	..	..	239	75	170	20
40. Cluny Road Ravine	..	..	60	..	..	..	..	..	..	..	40	96	..	..	..	..	..	..	..	..	..	..	255	15	223	85
42. Grange Road	..	..	..	..	..	..	1	..	..	..	60	..	..	..	..	..	..	..	..	..	..	..	33	78	13	73
43. Holland Park No. 1	5	..	100	10	..	..	..	..	..	..	80	148	..	..	..	..	..	..	..	..	..	..	393	20	432	20
48. Rodialic Drive	15	..	..	..	..	..	45	..	..	..	60	..	..	..	..	..	..	..	..	..	..	..	111	80	140	33
49. Swettenham Road	25	..	40	..	..	..	..	..	..	..	100	354	..	..	..	..	..	..	..	..	..	..	655	23	508	95
51. Tanglin Barracks No. 2	35	..	..	..	..	..	..	..	5	..	80	154	..	..	..	..	..	..	..	..	..	..	305	50	383	68
58. Kampong Java (Norfolk Road)	..	..	..	..	..	..	..	..	..	..	40	200	..	..	..	..	..	..	..	..	..	..	204	71	113	26
64. Thomson/Balesiter Road	..	..	10	25	..	..	75	40	5	..	..	..	..	..	..	..	..	..	..	..	..	..	256	50	135	40
70. Braddell Road Ravine 3 and 4	..	..	..	..	..	..	25	15	45	30	..	50	..	..	..	..	..	..	..	..	..	..	339	54	284	85
73. Mandalay Road	..	..	..	..	..	..	57	15	..	..	21	105	..	..	..	4	..	..	..	..	..	..	326	90	158	14
80. Economic Garden	70	130	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,099	60	640	30
81. Mount Rosie	20	..	90	..	..	..	20	..	..	..	300	120	..	..	..	..	..	..	..	..	..	..	989	52	770	80
91. Holland/Bukit Timah	151	..	..	..	..	..	..	..	..	..	590	642	..	..	..	..	..	..	..	..	..	..	1,950	82	2,073	15
96. Western Reclamation	..	..	15	..	..	..	..	..	..	..	50	100	..	..	..	..	..	..	..	..	..	..	1,161	77	126	00

DETAILS OF REPAIRS CARRIED OUT TO THE EXISTING ANTI-MALARIAL WORKS (1958)—*continued*

MATERIALS USED																								
Anti-Malarial Area	INVERTS										SLABS				SUB-SOIL PIPES						Labour Cost	Material Cost		
	21"		18"		15"		12"		9"		18"		15"		12"		8"		6"				4"	
	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R			N	R
100. Adam Park	32	..	29	..	55	..	85	..	..	..	335	..	..	..	..	10	..	2	..	..	..	921 16	1,005 91
101. Malay Cemetery	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	118	..	..	..	181 55	57 66
105. Bukit Permai	..	..	10	230	25	..	20	30	35	..	55	230	..	..	..	..	..	..	..	..	..	224 62	292 55
107. Wayang Satu Ravine No. 2	..	..	110	160	..	..	6	..	6	..	522	520	..	..	..	6	..	..	..	..	..	1,104 07	1,529 15
108. Bukit Belaya Village	..	..	..	..	40	30	..	..	..	..	70	80	..	..	..	..	..	..	..	..	..	363 42	203 83
109. Mt. Pleasant	60	..	..	..	..	..	..	..	..	..	70	100	..	..	..	..	..	..	..	..	..	360 10	213 40
110. McRitchie	250	130	115	..	6	..	..	..	..	..	220	332	..	..	..	..	..	50	..	..	..	1,731 00	1,927 26
115. Alexandra Road Ravine	90	20	30	..	15	..	5	..	..	..	210	180	..	..	..	..	..	..	10	..	..	890 15	765 43
117. Telok Blangah Road Ravine	105	20	30	..	..	45	80	55	..	..	110	170	..	..	..	..	..	15	..	..	..	877 45	750 55
121. Brick Factory Ravine	55	5	100	20	..	..	40	55	..	..	245	100	..	..	..	..	..	..	..	..	..	630 13	691 14
124. Cemetery Ravine	..	..	..	..	..	..	10	..	..	..	60	110	..	..	..	..	..	..	..	..	..	413 04	398 25
125. Faber Ridge Ravine	85	..	10	..	..	..	..	..	..	..	180	135	..	..	..	..	..	..	..	..	..	711 51	668 44
129. Sungei Namley	60	..	32	..	65	..	10	..	..	..	290	204	100	..	..	..	..	..	..	..	..	1,717 75	1,178 04
130. Mt. Washington	210	70	20	30	15	15	80	25	7	10	1,010	617	..	..	..	..	..	..	..	..	..	2,219 04	2,487 34
133. Kallang Basin Area	..	..	27	265	..	..	132	730	..	..	..	75	..	..	..	..	..	..	..	..	..	2,223 94	1,139 69
135. Kim Keat Road Ravine	..	..	..	..	..	..	..	..	..	..	30	75	..	..	..	..	..	..	..	..	..	152 08	60 56
136. Boon Teck Road Ravine	..	..	..	..	..	..	45	55	..	..	70	335	..	..	..	..	..	..	..	..	..	317 18	159 10
137. Jalan Rajah	..	..	10	..	..	..	20	30	..	..	40	65	..	..	..	..	..	..	..	..	..	176 12	180 60
138. Ah Hood Road Ravine	..	..	60	10	145	..	20	30	..	..	275	760	..	..	..	..	..	..	..	..	..	1,616 31	1,126 17
139. Irrawaddy Road Ravine	55	165	..	..	..	..	4	..	..	..	..	50	..	..	..	107	92	..	..	12	26	766 19	194 49
143. Kampong Potong Pasir	..	..	..	..	..	..	..	..	10	..	10	20	..	..	..	..	..	..	..	..	..	95 00	34 77
146. Mohd. Cemetery	..	..	..	..	..	..	..	..	..	..	5	20	..	..	..	..	..	..	..	..	..	36 64	26 51
148. Serangoon Road	12	40	15	25	..	..	..	25	..	..	95	285	45	..	..	..	..	..	..	..	..	459 06	294 75
151. Hokien Cemetery No. 1	..	..	90	105	15	..	10	15	..	..	260	260	..	..	..	..	..	..	..	..	..	842 60	669 41
154. Thomson Road Ravine No. 4	..	..	..	..	..	..	5	15	..	..	20	25	..	..	..	..	..	..	..	..	..	68 32	84 20
160. Kampong Martin	..	..	..	..	..	..	..	..	..	..	6	6	..	..	..	..	..	30	40	..	..	33 78	12 18
162. Kampong Bintang	..	..	..	..	..	..	30	220	..	..	..	..	..	..	..	..	..	..	..	..	..	221 07	12 00
164. Woodsville	..	..	..	..	..	..	40	15	..	..	85	370	20	60	..	..	..	..	..	..	..	280 24	67 62
170. Braddell Road Ravine	..	..	30	25	25	30	40	80	5	..	140	365	..	..	..	10	..	..	..	..	..	692 89	415 27
172. Sommerville Ravine	..	..	10	85	30	30	40	..	..	..	..	..	..	..	..	..	..	..	..	..	..	740 13	472 46

KAMPONG SANITATION, 1958

MATERIALS USED														Remarks	Materials Cost	Labour Cost	Distribution of maintenance Gang
INVERTS						SLABS			SUB-SOIL PIPES			MISCELLANEOUS					
21"	18"	15"	12"	9"	18"	15"	12"	8"	6"	4"							
	460	180	120	10	250	..	..	..			\$ c.	21,494 15	1,714 12	12 labourers 1 labourer 2 labourers 2 labourers 1 labourer 1 Mandore and 18 labourers	
South	30	10	..	..	..	..	..	..			68 24	1,498 95			
Kampong Silat	165	60	70	5	..	..	..	..			559 60	3,764 45			
Kampong Silat (S.I.J.)	..	40	55	35	40	10	..	..	..	..			367 55	3,415 90		
Kampong Mount Washington	20	10	..	15	..	..	..	..			68 12	1,507 55			
Kampong Alexandra																	
Kampong Bukit Permei																	
North																	
Kampong Geylang Serai	20	20	40	..	..	..	..	..			244 60	24,806 05			
Kampong Amber	2,433 45			
				St and	Pipes												
North			191 31	348 30		Construction of Stand Pipes washing Basins	

CITY COUNCIL OF SINGAPORE

ANNUAL REPORT ON THE CITY ANALYST'S DEPARTMENT FOR THE YEAR 1958

THE WORK OF THE Analyst's Department consists in giving scientific advice and in carrying out the necessary chemical analyses for all the departments of the City Council. This work continued to increase during the year 1958 when a total number of 30,293 samples were examined, an increase of 1,859 samples over the number examined the previous year. This represents an increase of 6.5 per cent. The samples were submitted by the departments of the City Council, and includes also a large number sent in by commercial firms. The samples can be classified according to their source of origin as follows:—

				<i>No. of samples examined</i>
Water Department	...	...	...	20,354
Gas Department	...	...	...	783
Electricity Department	...	...	...	1
Engineer's Department—				
Sewerage Section	...	...	...	3,733
Sanitary Section	...	...	...	1
Stores and Workshops	...	...	...	101
Architect and Building Surveyor's Department	...			2,471
Health Department	...	...	...	1,181
Veterinary Department	...	...	...	2
Secretariat	...	...	...	10
Commercial firms	...	...	...	1,656
			Total ...	<u>30,293</u>

A general indication of the nature of the samples examined and of the diverse consultative and advisory work carried out for the various departments of the Council is given below.

WATER DEPARTMENT

The following samples were analysed for the Water Department:—

Water samples taken at various stages during treatment	...	...	...	12,296 samples
Water from camp supplies	...	...	...	1,485 ..
Raw water	...	...	...	2 ..
Treated water from Clear Water Tanks	...	...	...	46 ..
Water for fluorine test	...	...	...	5,367 ..
Water from mains, taps, etc.	...	...	...	24 ..
River water after micro-screening	...	...	...	130 ..
Deposits, sediments, and sludges	...	...	...	6 ..
Earth	...	...	...	3 ..
Water-treatment chemicals, etc. (sulphate of alumina, hydrated lime, sodium silicofluoride, sterilizing tablets)	...	...	...	61 ..
Urine for fluorine test	...	...	...	299 ..
Indicator solutions	...	...	...	323 ..
Galvanised pipes	...	...	...	4 ..
			<i>Carried forward</i> ...	<u>20,046</u> ..

	<i>Brought forward</i> ...	20,046	
Tar, bitumen compound, and joint-sealing compounds ..		8	samples
Welding machine oil		2	„
Boiler scale		1	sample
Boiler water		297	samples
	Total ...	20,354	„

The water supply of Singapore is derived partly from Johore and partly from the island itself. The water undergoes full chemical treatment at four works, two in Johore and two on the island. The treatment used at Tebrau Works over the greater part of the year was that employing “activated silica” in conjunction with small doses of lime and alum. At the other three works at Gunong Pulai, Bukit Timah and Woodleigh the conventional lime-alum treatment was used. The excellent chemical quality of the water was maintained throughout the year. The average figures of the daily tests on raw waters and treated waters, and those of the monthly tests on clear water tank samples are given in Tables A, B and C respectively.

The addition of fluorine to the water supply was carried out at the four works throughout the year. This was adopted as a health measure to reduce the incidence of dental caries amongst growing children. The treated water contains 0.7 part per million of fluorine.

Experiments were carried out on the effectiveness of micro-mesh screens in removing turbidity from Tebrau River water. These screens were intended to be used on the river water to be pumped into the proposed enlarged Peirce Reservoir, but the use of the screens have now been abandoned.

The residual chlorine content of the water at several points along the Johore pipe-line from Gunong Pulai to Tampoi was determined on two occasions. There was a steady fall of residual chlorine of about 0.02 part per million per mile of main, and the appropriate chlorine dose to be applied at Gunong Pulai was accordingly calculated.

Comparison tests were carried out on several bitumen compounds to find their suitability for use as lining for water tanks. One proprietary brand was found to impart very little smell to water.

Boiler water from the pumping station at Woodleigh was regularly examined. The condition of the water was satisfactory throughout the year.

GAS DEPARTMENT

The following samples were analysed:—

Boiler water	388	samples
Circulating water from oil gas plant	360	„
Soda ash	1	sample
Coke	1	„
Oil gas tar	18	samples
Coal tar	1	sample
Naphthalene content of City gas	4	samples
Iron oxide	3	„
Scale, and deposit	2	„
Centrifuged pump plate and scrapings from impeller blade ...	2	„
Reagents (iodine solution, ethylmercaptan and salicylic acid)	3	„
	Total ...	783 ..

The City Gas Works have in the past been supplying coal gas to the City, but during 1958 a new plant producing oil gas was in operation. The plant produces this gas by the catalytic degradation of fuel oil. Because of this change the nature of the samples received was somewhat different from that of previous years.

The number of boiler water samples examined averaged more than one sample a day; this was because two boilers were in operation towards the latter part of the year. Circulating water from the oil gas plant was also examined in large numbers to ascertain its corrosiveness towards the centrifugal pumps used in the plant.

Experiments were carried out on oil gas tar, produced as a byproduct, to find ways of removing its water content to render it suitable for use as wood preservative.

One sample of scale taken from a cast-iron gas main was found to contain naphthalene and cyanogen compounds. A deposit from a condenser box was found to consist mainly of iron rust.

ELECTRICITY DEPARTMENT

One sample of lead cable sheathing was examined for the Electricity Department. The sample was found to have suffered extensive corrosion because of wetting with water containing lime in solution. There was also evidence of leakage of current through the hessian layer of the cable.

ENGINEER'S DEPARTMENT

Sewerage Section

The following samples were analysed:—

Routine sewages, effluents, top-waters and sludges	...	3,005 samples
Septic tank samples	...	636 ..
River water	...	82 ..
Hydrogen sulphide content of effluent	...	6 ..
Liquid	...	1 sample
Sand	...	1 ..
Cast-iron pipe	...	1 ..
Diaphragm of pressure gauge	...	1 ..
Total	...	3,733 samples

Routine examination of sewage samples from the two sewage disposal works run by the City Council, one at Alexandra Road and the other at Kim Chuan Road, was carried out regularly throughout the year. At the Alexandra Road Works the sewage is treated on percolating filter beds and the effluent discharges into Singapore River. At the Kim Chuan Road Works the activated sludge process is used and the effluent discharges into Serangoon River. The average results and ranges of the effluents are given in the following table:—

AVERAGE ANALYSIS OF SEWAGE WORKS EFFLUENT
(in parts per million)

	ALEXANDRA ROAD WORKS EFFLUENT		KIM CHUAN ROAD WORKS EFFLUENT	
	Average	Range	Average	Range
Free and Saline Ammonia	14.0	5.6/21.6	23.9	14/32
Albuminoid Ammonia ...	3.4	0.8/8.0	6.1	4/12
Oxygen Absorbed in 4 hours	13.6	4.9/21.1	28.7	17.5/60.3
Biochemical Oxygen Demand ...	29.1	7.1/54.1	63.7	18.8/120
Total Solids ...	629	176/2028	543	288/1484
Suspended Solids ...	31	9/66	34	10/83
Nitrates (as N) ...	absent	ab./ab.	absent	ab./ab.
Chlorides (as Cl) ...	251	65/900	168	70/570
pH ...	7.35	7.1/7.5	7.3	7.0/7.5

The results for the Alexandra Road Works effluent show a further deterioration in quality over the results for 1957 (Oxygen Absorbed in 4 hours 13.3, B.O.D. 27.5, Suspended Solids 28). It is noteworthy that nitrates were not found in any sample examined during the year. The Kim Chuan Road Works effluent improved slightly but the strength during 1958 was about twice that of the Alexandra Road effluent.

The hydrogen sulphide content of the effluent from Kim Chuan Road Sewage Disposal Works was determined and found to be around 1 part per million by weight. The concentration of this gas in the atmosphere of the outfall conduit ranged between 2 and 7 p.p.m. by volume.

The Sewerage Section also looks after a number of small sewage purification plants, mostly private installations in unsewered areas. Regular samples were taken from these plants for analysis, and during the year 636 samples were analysed. The effluents from these plants were generally of good quality, and the average results in parts per million are as follows:—

Free and Saline Ammonia	...	22.5 p.p.m.
Albuminoid Ammonia	...	5.1 p.p.m.
Oxygen Absorbed in 4 hours	...	18.3 p.p.m.
Suspended Solids	...	40.3 p.p.m.
Chlorides	...	27.3 p.p.m.
Nitrates	...	2.5 p.p.m.

One sample of the diaphragm of a pressure gauge attached to a nightsoil main was analysed for the cause of corrosion. This was found to be due to the diaphragm being plated with lead, which was not resistant to hydrogen sulphide present in the nightsoil.

River waters taken from the rivers and canals maintained by the City Council were examined regularly throughout the year. The rivers were generally found to be in poor condition, containing a large amount of polluting material and deficient in dissolved oxygen content. In October 1958, the Health Committee authorised the carrying out of a comprehensive survey of the rivers with a view to finding ways of improving their condition. These investigations are continuing.

Sanitary Section

One sample of plastic tiling which is to be used by direct surface application was examined for porosity and resistance to acids. The sample was found to be satisfactory in these respects.

Stores and Workshops

The following samples were analysed:—

Water	...	...	...	2 samples
Sand	...	...	...	4 „
Soap	...	...	...	10 „
Soda ash	...	...	...	1 sample
Washing soda	...	...	...	1 „
Boiler water	...	...	...	80 samples
Boiler scale and deposit	...	...	...	2 „
Chemical reagent (phenolphthalein)	...	...	...	1 sample
Total				101 samples

The sand samples were submitted for British Standard Specification tests. The soap, soda ash and washing soda were examined to ascertain the best product. The boiler water from the boiler at the Trafalgar Street Stone Crushing Depot was examined regularly to ensure absence of scale-forming material.

ARCHITECT AND BUILDING SURVEYOR'S DEPARTMENT

The following samples were analysed:—

Swimming pool water—

from Mount Emily Pool	...	...	9 samples
from Yan Kit Road Pool	...	...	1,184 ..
from Farrer Park Pool	...	...	1,188 ..
Van Kleef Aquarium water	...	...	86 ..
Reinforced concrete for composition	...	...	4 ..
Total			2,471 ..

During the greater part of the year Mount Emily Pool was closed for reconstruction and very few samples were received from this pool. The water from the other two pools were regularly tested; the good condition of the water was maintained throughout the year.

Samples of salt and fresh water from Van Kleef Aquarium were also received for examination.

Four samples of reinforced concrete taken from the new swimming pool at King George V Park were examined to determine the cement; sand; granite ratio.

HEALTH DEPARTMENT

1,181 samples were received from the Health Department. These consisted mainly of samples taken in connection with the licensing of food factories and in the enforcement of the Sale of Food and Drugs Ordinance.

The number of formal samples received under the Sale of Food and Drugs Ordinance was 749, of which 184 were found to be adulterated, below standard or otherwise defective, and appropriate certificates were issued for these samples. The proportion of unsatisfactory samples was 24.6 per cent as compared to 17.8 per cent for 1957. Details of the adulteration and other irregularities found are given in Table D.

Routine tests were done regularly on samples of food and beverages manufactured locally in premises licensed by the Health Officer. These samples were tested for compliance with standards, metallic contamination, saccharin and prohibited preservatives.

Other samples analysed include anti-malarial oils, face-powders, eye-shadows, well-water and samples of industrial hygiene interest.

The range and variety of the samples examined are given in the following list:—

Food (1,002 samples)

Milk and milk products (including milk, evaporated milk, malted milk, whey powder, buttermilk powder, skimmed milk powder, powdered milk, sweetened condensed milk, butter, cheese, modified milk powders for infant feeding)	...	...	...	...	229
Beverages (including soda water, aerated water, ice-cream, blackcurrant juice, fruit juice concentrates, soursop juice, syrups, cordials, chocolate milk, tea, coffee, coffee mixtures, perry, champagne, brandy, whisky, rum, stout)	...	...	...	...	487
Spices (including chilli powder, cloves, coriander, cumin, mustard, pepper, and star aniseed)	...	...	...	...	73
Condiments (including soya bean sauce, tomato sauce, artificial vinegar, black vinegar, rice vinegar, malt vinegar)	...	...	...	...	47

Food essences and food colours	4
Cooking oils and fats	22
Canned food (bean paste, bran dough, bamboo shoot, fish, flat fish, dace, croaker, green peas, lettuce, luncheon meat, mushrooms, mixed pickles, preserved bean curd, leeks, soya beans, stewed clams, stewed eel, stewed pork, salted beans, salted vegetable, taro pudding) ...	43
Fresh fruits	52
Other foods (beef, bean cake, gelatine, honey, jam, pig's stomach, potatoes, smoked ham, sugar, sweets, wheat flour)	45
<i>Drugs (131 samples)</i>	
B.P. and B.P.C. drugs	62
Patent medicines and native medicines	69

B.P. and B.P.C. drugs examined included aspirin, A.P.C. tablets, aneurine hydrochloride tablets, boric acid powder, eucalyptus oil, ferrous sulphate tablets, glycerine, hydrogen peroxide, liquid paraffin, quinine ethyl carbonate, quinine bisulphate, tincture gentian, tincture of ipecacuanha, tincture of iodine, and vitamin C tablets.

<i>Other samples (48 samples)</i>	
Anti-malarial oil	7
Cosmetics (face-powder, "chilla-mata" eye-shadow, eye-brow pencils)	33
Hazardous materials used in industry (lead compound, alloy, unknown substance, thinner for paints) ...	4
Well-water	4

158 samples of fresh milk sold by itinerant vendors were examined and 20 were found to be below standard, which is 12.7 per cent of the number submitted. 201 samples of coffee powder and coffee mixture were analysed and approximately 35 per cent of these samples were found to contain less than the required amount of coffee.

Vendors are apparently still not aware of the new Food and Drugs Regulation relating to spices—these may not contain any added material. Out of 30 samples of coriander powder examined 26 were found to contain ground rice which was added as adulterant.

A large variety of canned goods from China were examined. In general these were of fairly good quality.

Several samples of "Chilla Mata", an eye-shadow widely used by the Malay community, were examined and found to contain large amounts of lead, mainly in the form of the sulphide. The sale of such lead-containing cosmetics is prohibited by the Food and Drugs Regulations.

The City Analyst is a member of the Food and Drugs Sub-Committee of the Medical Advisory Council. This Committee met several times during the year to revise the Food and Drugs legislations.

VETERINARY DEPARTMENT

One sample of veterinary hypnotic was analysed for its pentobarbitone content. One sample of dog faeces was examined for poisons.

SECRETARIAT

Ten lots of "Copy-rapid" Developer solution were prepared for the Secretariat.

COMMERCIAL FIRMS

A total of 1,656 samples were received and reported on. The samples may be classified as follows:—

Essential oils	...	...	...	121 samples
Vegetable oils	...	...	...	214 ..
Ores	...	...	...	12 ..
Local produce	...	...	...	445 ..
Food	...	...	...	286 ..
Drugs	...	...	...	21 ..
Chemicals	...	...	...	52 ..
Fertilizers and feeding stuffs	...	...	...	10 ..
Metals and alloys	...	...	...	20 ..
Building materials	...	...	...	11 ..
Fuels and petroleum products	...	...	...	41 ..
Swimming pool waters, etc.	...	...	...	319 ..
Damaged goods	...	...	...	15 ..
Miscellaneous	...	...	...	89 ..
Total				1,656 ..

A larger number of samples of patchouli oil were analysed as compared to 1957. The market in this commodity would seem to have shifted back to Singapore, probably from Penang.

In December 1958, illipenuts again began to come in for analysis. These nuts are exported from Borneo and the trees are believed to bear fruit once in several years. The last occasion when these nuts were received in large numbers was in May 1954.

The Analyst's Department analyses swimming pool water for several social clubs in Singapore. One seamen's club and two Royal Air Force stations also send in regular samples of swimming pool water for testing.

Tests were carried out on several samples of lead cable sheathing, water and concrete ducting in connection with corrosion problems arising from the use of lead-protected cables.

Several samples of sewage were received from the Singapore Improvement Trust. These samples were taken from their purification plant in an estate in the rural area.

Requests for advice on water supply and water treatment were received from several places overseas, including British North Borneo, Brunei and Sarawak.

The full range of the samples examined for commercial firms is given in the following lists:—

Essential oils.—Canaga, citronella, nutmeg, patchouli.

Vegetable oils.—Palm, coconut, sesame, groundnut, mustard.

Ores.—Ores of iron, copper, lead, manganese; copper sulphide, galena, ilmenite, iron pyrites.

Local produce.—Jelutong, centrifuged latex, rubber powder, gum benjamin, cube gambier, mangrove bark, kapok seeds, nutmeg, derris root, illipenuts, palm kernels, palm kernel cake and meal, copra cake, copra chips, soap.

Food.—Fresh milk, reconstituted milk, "cremy" milk, ice-cream mix, snow cream, sweetened condensed milk, milk powder, "Economilk", frozen milk, cheese, soft drinks, tea, blackcurrant syrup, pineapple juice and chunks, wheat flour, soya bean powder, tapioca flour, pearl sago.

sugar, sweets, beef tallow, vegetable fat, monosodium glutamate, essence of chicken, sauce, salt, tomato ketchup, biscuits, beef sausages, curry chicken, dried clam meat.

Drugs.—Chinese medicine, tri-sulphonamide suspension, sulphonamide tablets, vitamin B1 tablets, and several proprietary medicines.

Chemicals.—Formic acid, rubber coagulating acid, hydrated lime, caustic soda, caustic potash, weak lye solution, anhydrous ammonia, carbon dioxide gas, nitrous oxide gas, "arcton" gas, sulphate of alumina, ammonium sulphate, sodium chloride, sodium phosphate crystals, microcalcite, calcium chloride, bromothymol blue, ortho-tolidine solution, unknown chemical compound.

Fertilizers and feeding stuffs.—Rock phosphate, bat guano, fish meal, shell fragments, chicken and turkey feeds.

Metals and alloys.—Copper, refined tin, gold, aluminium, gunmetal borings, brass ingots scrap, tin clippings scrap.

Building materials.—Cement, concrete, cement paint, sand, oil-tempered hardboard.

Fuels and petroleum products.—Fuel oil, lubricating oil, petroleum spirit, diesel oil, coal, anthracite.

Swimming pool waters, etc.—Pool water, ground water, raw water, well-water, sea-water, treated water, drinking water, wash water, sewage effluent, sludge and top-water.

Damaged goods.—Crepe rubber, blankets, grass, galvanised corrugated iron sheet, cigarette carton, wheat flour, electrolytic tinplate waste, cotton textile, copra cake, gunny sacking, canned meat.

Miscellaneous.—Deposits, lead cable sheathing, concrete ducting, boiler sludge, debris, sediment, scale deposits, pressure joints, galvanised wire, china clay, soil, leather and rubber shoe parts, thread, textile, aluminium paint, face powder, face cream, medicated cream, liquid styrax, urine, serum, spirit, turpentine, gum spirit, air, oil-extracted rice bran.

STAFF

With the opening of the Singapore Polytechnic in November 1958, one member of the laboratory staff took advantage of the day release concession granted by the City Council and two others of the evening class facilities to further their knowledge of Chemistry.

Mr. T. A. Spillane, City Analyst, left Singapore on 27th September, 1958, prior to leaving the service of the City Council. He has been with the Department for 11 years. We are sorry to lose him and we wish him all the best in his future career.

As Deputy Analyst it was my privilege to act in the absence of the City Analyst. I wish to place on record the co-operation accorded me by the staff, without which the volume of work could not have been accomplished. Special mention should be made of those members in the Subordinate Division, who, in spite of their deficiencies in scientific training, have been most cheerful and willing in carrying out the exacting duties which are demanded by the strict discipline of Chemistry.

LIM CHIN KUAN, B.SC., M.SC., F.R.I.C.,
Acting City Analyst.

TABLE A

RAW WATER

AVERAGES OF DAILY ANALYSIS FOR YEAR 1958
(IN PARTS PER MILLION)

	TEBRAU RIVER		PONTIAN RESERVOIR		PEIRCE RESERVOIR		MACRITCHIE RESERVOIR	
	Average	Range	Average	Range	Average	Range	Average	Range
Nitrite Nitrogen (as Nitrogen)	a	..	a	..	a	..	a	..
Carbon Dioxide	3.1	2.4/3.7	2.1	1.2/4.0	1.3	1.1/1.7	1.2	1.0/1.9
Total Alkalinity (as CaCO ₃)	2.3	2.1/2.7	5.4	4.3/6.1	2.0	1.9/2.1	2.2	2.0/2.4
pH Value	6.0	5.9/6.2	6.5	6.2/6.7	6.2	6.0/6.4	6.3	6.0/6.5
Iron	.39	.29/.53	.48	.27/.71	.49	.41/.64	.37	.29/.46
Colour (Hazen Units)	31	22/49	18	14/24	24	16/48	25	13/64

TABLE B

TREATED WATER

AVERAGES OF DAILY ANALYSIS FOR YEAR 1958

(IN PARTS PER MILLION)

	TEBRAU		GUNONG PULAI		WOODLEIGH		BUKIT TIMAH	
	CLEAR WATER TANK		CLEAR WATER TANK		CLEAR WATER TANK		CLEAR WATER TANK	
	Average	Range	Average	Range	Average	Range	Average	Range
Nitrite Nitrogen (as Nitrogen)	a	..	a	..	a	..	t	a/t
Carbon Dioxide	0.04	a 0.20	0.15	a/0.4	0.60	0.5/0.7	0.48	0.3/0.6
Total Alkalinity (as CaCO ₃)	12.3	11.6/13.9	11.4	9.7/13.3	6.2	5.4/7.9	9.4	7.9/12.0
pH Value	8.6	8.4/8.7	8.2	7.7, 8.8	7.1	7.0/7.3	7.5	7.2/7.9
Free Chlorine	0.68	0.54/0.89	0.44	0.27/0.60	0.38	0.28/0.45	0.30	0.20/0.36
Soluble Aluminium (as Al)	0.41	0.26/0.64	0.53	0.45/0.66	0.38	0.18/0.67	0.65	0.37/0.95
Iron	0.05	0.05/0.09	0.20	0.13/0.39	0.14	0.10/0.19	0.16	0.11/0.22
Colour (Hazen Units)	<5	<5/5	5	5/6	5	..	5	..

TABLE C

CLEAR WATER TANKS

AVERAGES OF MONTHLY COMPLETE ANALYSIS 1958
(IN PARTS PER MILLION)

	TEBRAU		GUNONG PULAI		WOODLEIGH		BUKIT TIMAH	
	CLEAR WATER TANK		CLEAR WATER TANK		PUMPING MAIN		PUMPING MAIN	
Ammoniacal Nitrogen (as NH ₃)	0.14	..	0.11	0.16	0.13	0.13	0.13	0.13
Albuminoid Nitrogen (as NH ₃)	0.04	..	0.05	0.05	0.04	0.04	0.04	0.04
Nitrite Nitrogen (as Nitrogen)	a	..	a	a	t	t	t	t
Nitrate Nitrogen (as Nitrogen)	0.05	..	0.04	0.02	0.02	0.02	0.02	0.02
Carbon Dioxide	0.30	..	0.20	0.70	0.65	0.65	0.65	0.65
Total Alkalinity (as CaCO ₃)	11.7	..	11.3	6.4	9.2	9.2	9.2	9.2
Free Chlorine	0.60	..	0.50	0.39	0.34	0.34	0.34	0.34
Iron	0.07	..	0.28	0.15	0.15	0.15	0.15	0.15
Soluble Aluminium (as Al)	0.36	..	0.46	0.37	0.59	0.59	0.59	0.59
Chlorides (as Cl)	6.7	..	6.6	7.0	6.8	6.8	6.8	6.8
pH	8.4	..	8.2	7.1	7.3	7.3	7.3	7.3
Oxygen absorbed from KMnO ₄ soln. in 4 hrs.	0.56	..	0.50	0.62	0.53	0.53	0.53	0.53
Temporary Hardness (as CaCO ₃)	11.7	..	11.4	6.4	9.2	9.2	9.2	9.2
Permanent Hardness (as CaCO ₃)	11.0	..	12.4	19.4	18.8	18.8	18.8	18.8
Total Hardness (as CaCO ₃)	22.6	..	23.8	25.8	27.9	27.9	27.9	27.9
Total Dissolved Solids	40.0	..	46.7	45.0	50	50	50	50
Suspended Solids	1.0	..	0.8	1.0	0.4	0.4	0.4	0.4
Colour (Hazen Units)	5	..	5.3	5	5	5	5	5
B.O.D. in 3 days	0.13	..	0.17	0.17	0.20	0.20	0.20	0.20

TABLE D

FOOD AND DRUGS SAMPLES ADULTERATED OR OTHERWISE IRREGULAR

No.	Sample	Nature of Irregularity
16	Milk	Deficient in solids-not-fat.
2	Milk	Deficient in fat.
2	Milk	Deficient in solids-not-fat and fat.
2	Skimmed Milk Powder ..	Not coloured as required by Regulations.
1	Sweetened Condensed Milk ..	No declaration of equivalent pints on label.
1	Sweetened Condensed Milk ..	Deficient in fat.
9	Soft Drinks	Contained saccharin.
9	Syrups, Squashes and Cordials	Contained saccharin.
2	Soya Bean Milk	Contained saccharin.
3	Grape Fruit Squash ..	Deficient in stated ascorbic acid content.
2	Blackcurrant Syrup ..	Deficient in stated ascorbic acid content.
1	Brandy	Deficient in proof spirit strength.
1	Whisky	Deficient in proof spirit strength.
58	Coffee Mixture	Deficient in coffee.
13	Coffee Powder	Not wholly coffee.
1	Chilli Powder	Adulterated with ground rice.
26	Coriander Powder ..	Adulterated with ground rice.
1	Pepper Powder	Adulterated with ground rice.
1	Chilli Sauce	Contained saccharin.
1	Tomato Sauce	Contained saccharin.
11	Soya Bean Sauce	Contained saccharin.
1	Salted Bean	Contained saccharin.
2	Preserved Soya Bean ..	Contained saccharin.
1	Preserved Soya Bean ..	Contained salicylic acid.
7	Vitamin B1 Tablets ..	Deficient in Vitamin B1.
1	Vitamin B Complex Tablets ..	Deficient in Vitamin B1.
1	A.P.C. Tablets	Deficient in stated ingredients.
1	Sulphonamide Preparation ..	Deficient in sulphonamide content.
1	Proprietary Analgesic ..	Deficient in stated phenacetin content.
6	“Chilla-mata” Eye Shadow ..	Contained lead sulphide.
Total number of formal samples received		749
Number of unsatisfactory samples		184
Percentage of unsatisfactory samples		24.6%

BACTERIOLOGICAL DEPARTMENT

I HAVE THE HONOUR to submit a report on the work done during the year 1958.

The report comprises of the following sections:—

SECTION A—PUBLIC HEALTH SPECIMENS

	1956	1957	1958
City Health Office	15,740	12,851	9,169
Maternity and Infant Welfare Clinics ..	8,169	9,532	10,867
City Council Outdoor Dispensaries ..	—	—	17
Middleton Hospital	13,247	16,596	16,331
St. Andrew's Mission Hospital	29	10	7
Kwong Wai Siu Free Hospital	3	—	2
Johore and Tebrau Water Works	613	182	207
Private Medical Practitioners	5,411	4,373	3,034
Rats from Plague Prevention Section ..	5,610	6,229	6,051
Ecto-parasites of Rats from Plague Prevention Section	3,218	6,709	6,293
Total	52,040	56,482	51,978

SECTION B—WATER

Routine	13,331	12,878	13,409
City Council Swimming Pools	2,494	3,633	2,894
Miscellaneous	315	371	326
Algae, Sludge and Others	67	91	103

SECTION C—WASH WATER

Wash Water	36	35	36
Grand Total	68,283	73,490	68,746

Malaria.—827 blood films were examined for malarial parasites.

Five (5) specimens were positive for *P. falciparum*.

Nine (9) specimens were positive for *P. Vivax*.

Tuberculosis.—1,465 specimens were examined.

	Positive	Negative	Total
Sputum	27	1,403	1,430
Milk .. .. .	..	35	35
Total	27	1,438	1,465

-----			Positive	Negative	Total
<i>Enteric Fever:—</i>					
Agglutination with Sal. typhi	..	..	129	573	702
Agglutination with paratyphi A.	..	..	3	379	382
Agglutination with paratyphi B.	..	..	25	357	382
Agglutination with paratyphi C.	..	..	14	368	382
Blood clot culture—Sal. typhi isolated	..	..	57	325	382
Fæces culture—Sal. typhi isolated	..	..	50	1,122	1,172
Urine culture—Sal. typhi isolated	..	..	5	1,150	1,155
Total ..			283	4,274	4,557
Agglutination with Vi I antigen	..	..	..	701	701
Grand Total ..			..	..	5,258

Tropical Typhus.—Blood for Weil Felix Reaction.

684 blood specimens were examined.

Only one specimen was positive for *B. proteus* OXK.

Dysenteries

1,811 specimens of fæces were examined for Amœbic Dysentery.

Entamœbæ histolytica were present in 43 specimens.

Entamœbæ coli were present in only one specimen.

1,652 specimens of fæces were examined for Bacillary dysentery.

Shigella flexner was isolated from 83 specimens.

Shigella sonnei was isolated from 102 specimens.

Plague.—No human specimens were received.

6,051 rats were dissected and none showed any signs of plague infection.

6,293 ecto-parasites were examined.

The species and distribution of all rates and ecto-parasites are given in the table attached.

Cerebro-Spinal Fever.—Only one specimen of cerebro-spinal fluid was examined.

Cholera.—Six (6) specimens of fæces were received.

Leprosy

22 smears were examined.

5 were positive.

Diphtheria.—Throat swabs, Nasal swabs, and Swabs from ulcers for culture for *C. diphtheria*.

11,498 specimens were examined.

1,477 specimens were positive.

The Government School Health authorities sent a total of 380 specimens during the period from January to March 1958.

MISCELLANEOUS EXAMINATIONS

Pathological exudates for General Examination	..	7
Urine for General Examination	.. ..	2,154
Pus and Urine for Gonococci	.. ..	417
Blood for culture	.... ..	2
*Blood for Kahn test	.. ..	4,738
Blood for T.R.C., T.W.C., and Differential Counts	..	574
Blood for Haemoglobin estimation	.. ..	84
Blood for B.S.R.	.. ..	48
Blood for Micro-filaria	.. ..	1
Faeces for Intestinal parasites	.. ..	10,671
Sundried humus	.. ..	165
Disinfectants	.. ..	4
Milk bottles for sterility tests	.. ..	12
Milk	.. ..	105
Ice Cream	.. ..	198
Leptospirosis (Rat specimen)	.. ..	1
Canned Food	.. ..	28
Total	..	19,209

**Comments.*—The routine Kahn tests for V.D. for all antenatal cases from the Maternity and Infant Welfare Department which began in June 1956, is still being continued. There were 4,066 specimens in 1958 compared to 6,149 specimens for 19 months of the previous years. The number of positives for 1958 was 156.

B. WATER

Routine.—13,409 routine samples of water were received from the City Water Engineer and 2,894 samples were received from the City Council Swimming Pools. Only 6 samples of water were received from the Mount Emily Swimming Pool.

The condition of the tap water remained satisfactory throughout the year. The following is a summary on the various samples examined:—

Source	Year's Average total colonies per ml. at 37° C. in 24 hours	Year's Average presumptive coli- form count per 100 ml.
MacRitchie Res. Valve Tower	276	40
Peirce Res. Valve Tower	336	12
Seletar Res. Channel	216	15
Pontian Res. Valve Tower	329	37
Bukit Timah Res. Clear Water Tank	101	Less than 1
Woodleigh Res. Clear Water Tank	15	Less than 1
Gunong Pulau Res. Clear Water Tank	14	Nil.
Tebrau (Outlet) Clear Water Tank	14	Less than 2
Pontian Res. Camp supply	24	Less than 1
Pearl's Hill Res. Tank 1	24	Nil.
Pearl's Hill Res. Tank 2	24	Less than 1
Pearl's Hill Res. Air Valve	18	Nil.
Fort Canning Res.	14	Less than 1
Taps—Bacteriological Laboratory	13	Less than 1
Lorong Lalat Office	15	Nil.
Havelock Road Office	30	Less than 1
Pasir Panjang Office	29	Less than 1
Dunearn Road Office	23	Less than 1
Joo Chiat Road Office	22	Nil.
Average of Six (6) taps	22	Less than 1

Swimming Pools

(i) *Mount Emily*:—

Only 6 samples were received in 1958

(ii) *Yan Kit*:—

Shallow (Inlet) ..	..	10	Nil.
Deep End (Practice Pool) ..	..	10	Nil.
Main Pool (Inlet) ..	..	10	Nil.
Main Pool (Outlet) ..	..	10	Nil.

(iii) *Farrer Park*:—

Shallow (Inlet) ..	..	9	Nil.
Shallow (Outlet) ..	..	9	Nil.
Main Pool (Inlet) ..	..	9	Nil.
Main Pool (Outlet) ..	..	10	Nil.

Miscellaneous

Singapore Swimming Club ..	..	..	207
Tanglin Club ..	..	..	46
Chinese Swimming Club ..	..	..	45
Other Sources ..	..	..	28
Total ..			<hr/> 326 <hr/>

Algae.—89 samples of water were examined for algæ counts.

Sewage Effluent.—14 samples of sewage effluent were examined.

C. Wash Water.—36 samples of wash water were received from the Conservancy Department.

STAFF

1. Dr. Ng See Yook, the City Bacteriologist, was promoted to the post of City Health Officer on 1st December, 1958 after having acted as Deputy Health Officer for almost a year. During Dr. Ng's absence from the laboratory Dr. Ling Ding Seng acted as the City Bacteriologist in addition to the discharge of his duties of Assistant Health Officer (Anti-Mosquito Department). The post of City Bacteriologist is still vacant.

2. Mr. K. Munisamy, Senior Laboratory Attendant resigned from the City Council service on 1st December, 1958, after 31 years of faithful and excellent service.

GENERAL

The laboratory staff contributed exhibits at the Victoria Memorial Hall in connection with the Mass Health Movement of the City Council during the months of October—December. I take this opportunity to express my appreciation for their fine contributions which were favourably commented on by many spectators.

Dr. LING DING SENG, M.B., B.S., D.P.H.,
Acting City Bacteriologist.

Table 1.

RATS AND FLEAS—SPECIES AND DISTRIBUTION, YEAR 1958

Source	<i>R. Norvegicus</i>		<i>R. Rattus</i>		<i>R. Concolor</i>		<i>M. Musculus</i>	<i>Croci- dura</i>	Total Rats	Fleas X Cheo- pies	Fleas Others C. Felis	Total Fleas	Mites	Remarks
	M.	F.	M.	F.	M.	F.	M.							
City Health ..	951	2,452	34	64	182	360	170	47	4,464	4,933	..	4,933	684	
Government Health	20	95	9	20	114	185	153	109	707	390	1	391	72	
S. H. B. ..	31	57	84	136	7	17	..	2	334	175	..	175	31	
Port Health ..	1	2	98	141	65	79	58	101	546	..	..	..	..	Fumigated H.C.N.
Total ..	1,003	2,606	225	361	368	641	381	259	6,051	5,498	1	5,499	787	
Grand Total ..	3,609		586		1,009		640		6,051	5,499		5,499	787	

ANNUAL REPORT OF MATERNAL AND CHILD WELFARE DEPARTMENT 1958

	1957	1958
I. <i>Total number of confinements in City Area</i> ..	48,069	47,147
Nature of Confinements:		
In Hospital	29,299	30,073
By Private Doctors	3,576	3,267
By Private Midwives	14,566	13,310
By City Council Midwives	1,305	1,411
With no skilled attention	628	497
Of these confinements:		
Number of Mothers visited by District Sisters within 10 days after confinement	18,237	16,637
Subsequent visits to sick mothers	3,172	5,802
Sick Mothers treated in their homes by Lady Assistant Health Officers	5,325	6,668
Maternal Deaths in Puerperium	8	14
Mothers removed and untraced	525	334
<i>Total Number of Birth in City Area</i>	46,503	—
Number of twins	384	398
Number of triplets	3	2
Number of quadruplets	—	1
Still-births	772	737
Babies died	—	180
Number of newborn babies seen by District Sisters	17,986	16,334
Babies born in Hospital	28,754	29,784
Babies untraced	527	510
II. <i>Free Midwifery Services from the Clinics</i>		
Free Confinements conducted by the City Council Midwives	1,305	1,411
Number of cases referred from Kandang Kerbau Hospital for post-natal domiciliary aftercare by City Council Midwives	12,597	14,106
Abnormal cases referred to Kandang Kerbau Hospital	16	24
Number of self attended deliveries followed up by City Council Midwives	116	84
Total visits paid by City Council Midwives to patients' homes	41,965	41,626
III. <i>Visits paid by Health Visitors to homes</i> ..	92,030	76,301
1st visits following Birth Report	30,939	28,343
Subsequent visits	61,091	47,958
Percentage of Total Births visited by Health Visitors	64.36%	60.12%
Total number of visits of Sisters and Health Visitors to homes	128,653	98,740
IV. <i>Clinic Activities</i>		
A. INFANTS		
New infants 1st attendances at Clinics ..	28,300	28,870
Subsequent attendances of Infants at Clinics	185,460	188,699
Total attendances ..	213,760	217,569
Of these, attendances of Sick Babies were ..	134,693	151,167
i.e. in percentage	63.01%	69.48%

			1957	1958
<i>B. TODDLERS—</i>				
1st visits	..	..	43,915	22,400
Subsequent visits	..	..	38,489	41,953
Total visits	..		82,404	64,353
Of these, attendances of Sick Toddlers were				
i.e. in percentage	..	..	19,095 22.67 %	43,335 67.34 %
<i>C. SICK MOTHERS</i>				
Number of Sick Mothers treated:				
In Clinics	..	..	27,023	34,449
On District	..	..	5,325	6,668
Total	..		32,348	41,117
<i>D. ANTENATAL CONSULTATIONS IN CLINICS</i>				
Antenatal mothers 1st attendances	..		5,278	7,311
Subsequent attendances	..	..	14,078	18,032
Total	..		19,356	25,343
Antenatal home visiting by Health Visitors				
Kahn Blood Tests taken	..	..	8,724	7,128
Number positive	..	..	3,691	4,131
i.e. in percentage	..	..	121 3.28 %	161 3.89 %
<i>E. VACCINATION OF INFANTS AGAINST SMALL-POX</i>				
Clinics	..	..	19,211	19,896
District	..	..	3,883	3,988
<i>F. IMMUNISATION AGAINST DIPHTHERIA</i>				
				<i>Mobile Team</i>
				<i>Clinic</i>
<i>(a) Under 1 year old</i>				
1st injections	..	..	9,073	6,667
2nd injections (Number who completed the course)	..	..	8,549	5,046
Total injections	..		17,622	11,713
<i>(b) Over 1 year</i>				
1st injections	..	..	23,944	—
2nd injections (Number who completed the course)	..	..	20,748	—
Total injections	..		44,692	—
Visits to homes to follow-up cases	..		5,696	—
Febrile actions	..	..	2,922	—
<i>(c) T.A.F. Injections (over 10 years)</i>				
1st injections	..	..	2,543	312
2nd injections	..	..	2,084	196
3rd injections	..	..	1,569	—
Total	..		6,196	508
<i>(d) Contact Cases</i>				
1st injections	..	..	1,698	—
2nd injections	..	..	1,252	—
Total	..		2,950	—
<i>(e) Boosting Doses</i>				
	..	..	9,776	901
				2,658

G. IMMUNISATION AGAINST DIPHTHERIA AND WHOOPING COUGH

1st injections	..	..	..	6,337	4,396
2nd injections	..	..	..	5,679	4,717
3rd injections (Number who completed the course)	..	..	..	4,932	4,568
Total	..			16,948	13,681
Febrile reactions	..	..	..	2,753	2,297

H. TRIPLE ANTIGEN

1st injections	..	..	..	—	103
2nd injections	..	..	..	—	49
3rd injections	..	..	..	—	48
Total	..			—	200

I. B.C.G. VACCINATION

No. of Babies under 1 month vaccinated	..	—	2,904
No. of Babies returned for Mantoux Test	..	—	893

J. FREE MILK POWDER

Total number of babies given Free Milk	..	4,786	9,851
Number of nursing mothers given Free Milk		942	1,139
Number of Re-issues	..	45,210	64,423
Amount given Salvation Army	..	1,200	—
Amount given to Convent	..	1,200	—
Total number of lb. Powdered Milk used	..	39,928	57,866

V. Supervision of Midwives in Private Practice by Supervisor of Midwives

(a) No. of inspections of Private Midwives bags		1,540	1,371
(b) District visits to check on work of Private Midwives	..	2,342	1,857
(c) Investigation of Puerperal Fever Cases reported	..	90	83
(d) Investigation of Tetanus Neonatorum Cases reported	..	5	2

VI. Medical Examination of City Council Female Staff

(a) For fitness to join service, confirmation in service and to join Municipal Provident Fund	..	234 } 489	393 } 1,064
(b) For treatment of ailments	..	255 }	671 }

VII. Dental Clinic

Antenatal Mothers	..	..	..	—	378
Toddlers	..	..	..	—	40

VIII. Attendances at Creches

Infants	..	..	..	..	—	1,166
Toddlers	..	..	..	..	—	17,742
Total	.			—		18,908

COMMENTS

Pressure on the Clinics increased during 1958 as is evidenced by a study of the figures of attendances of children consultations and Antenatal sessions. During the year the treatment of toddlers up to 6 years old came within our legitimate province, whereas previously they were officially permitted to attend only up to 2 years old, but in actual practice were seen by the Clinic Staff when the mothers came with the whole family of children for consultation.

There was an ever growing accent on treatment, which though not actually, within the scope of Maternal and Child Welfare activities, has nevertheless been undertaken for years for minor ailments, as it is not possible and practical to separate curative and preventive medicine in our present state of society as yet.

Home Visiting figures showed a decline, whether by Antenatal Health Visitors, District Sisters to mothers in the puerperium or Health Visitors to babies in the 1st year of life. Health Visiting unfortunately had to be sacrificed as the logical answer to the difficulties of staffing shortages if the Clinics were to be sufficiently manned in order to maintain efficiency in the face of the increasing attendances. In addition staff had to be lent for other projects, whenever the need arose—e.g. to aid Fire Victims, to assist health education exhibitions, to undertake polio vaccine feeding etc.

Midwifery Services.—For half the year we carried on as best we could with 1 Midwife less than the usual total of 18 on the Establishment, due to the difficulty in filling the vacant post following the dismissal of one of the midwives.

There was an increase of over 100 confinement cases performed by the midwives, and a tremendous increase of nearly 2,000 cases for Post-Natal follow ups who had been delivered in Kandang Kerbau Hospital and discharged early within the first few days in the puerperium. Each Midwife has an average of 20 cases or more to attend daily and at times nearly 30. When these are scattered in the more outlying parts of the City area, it is a very heavy duty for them and the shortage of 1 member throws an extra burden on the others.

It is gratifying to see that self attended cases are getting less dropping from 116 in 1957 to 84 in 1958 and that the incidence of tetanus of the newborn is consequently diminishing.

Antenatal Sessions.—There has been a tremendous increase in the attendances of Antenatal mothers who would normally have been attending at Kandang Kerbau Hospital but were referred to the Clinics nearest where they lived. Eventually the number of attendances per clinic had to be restricted in order that the sessions could finish at a reasonable time instead of going on till well past 5 p.m. as happened at first. Due to staffing shortages, there was less visiting of Antenatal mothers in their homes to advise on preparations for domiciliary confinement and to see if the homes were suitable for the conduct of confinements.

Vaccination against Small-Pox.—Since the control of primary vaccination against small-pox in infants became the responsibility of this department, there has been stepping up of efforts to get these infants vaccinated as soon as possible after $2\frac{1}{2}$ –3 months of age. The Health Visitors and Vaccinators were set to do intensive home visiting of children who had passed six months without being vaccinated, to advise and to inform parents of the necessity for early vaccination. Although under the Quarantine and Prevention of Disease Ordinance there are powers to summon and fine those who have not been vaccinated

by six months of age, in actual practice, no summonses have ever been taken out, advice and persuasion being usually employed to try and convince parents, and where illhealth justified postponement, this was advised, to be obtained from clinic, hospital or private doctors. A large percentage of non-vaccinated cases were discovered but with the shortages of staff, it was difficult to follow them up by home visiting.

Expansion.—1958 was a year of many developments in the Maternal and Child Welfare Department.

1. *A Dental Clinic* for expectant mothers and toddlers was opened in Prinsep Street Clinic on 2nd January, 1958 thus initiating the supply of a long felt need. The dental officer, and nurse, drugs and equipment are being supplied by Government Dental Department. At first the Antenatal mothers were not very willing to take advantage of this service but with painstaking explanation of the importance and necessity of dental care in pregnancy, the response is now very encouraging. Cases are also referred from other City Council Maternal and Child Welfare Department Clinics by appointment. This one dental clinic alone cannot possibly fulfil the needs for dental care for Antenatal mothers and it is to be hoped that in due course this service can be offered in all the other Maternal and Child Welfare Clinics in the City area. Similarly in the case of toddlers, little attention had been given previously as the popular belief was that caries of milk teeth was perfectly natural and inevitable, and did not really matter, whereas actually the preservation of the health of milk teeth is of importance, affecting the dentition and future state of permanent teeth to come.

2. *B.C.G. Vaccination of the Newborn.*—After completion of training at Tan Tock Seng Hospital and Kandang Kerbau Maternity Hospital, a small team of our staff commenced this work in July in 2 of our clinics, at Prinsep Street Clinic and Kreta Ayer Clinic. B.C.G. vaccination was offered to newly born infants, within the first month of life along the lines that are being followed by Government in Kandang Kerbau Maternity Hospital and the Rural Maternity and Child Welfare Clinics. Pamphlets and consent forms in the 4 main languages had been prepared and publicity regarding this work had been spread in Antenatal clinics, by District Sisters visitings in the puerperium and through the Midwives in private practice. As the response was good, this work was later extended to Joo Chiat Clinic in October, but with the difficulties of staffing, it has not as yet been possible to offer it at all to the clinics in the City area.

3. *Creches.*—In fulfilment of the Mayor's expansion projects, 3 Creches were completed by the target date of June 30. Later on a fourth Creche commenced functioning in August. These are supplying a long felt need for the care of the small children of women who are forced by economic circumstances to go out to work. They were each planned to receive about 50 children, and every care had been taken that the physical health and recreational needs of growing children should be provided for within the limits of the budget. Owing to the increasing demand for these Creche facilities Council decided that the length of stay of each child should be limited to 2 months only.

4. *Institute of Health (Urban Health Centre).*—This building presented by the Government of United Kingdom to the people of Singapore was eventually completed and officially opened by the Minister of Health in March 1958, after several years of planning. The Maternal and Child Welfare section replaced the small temporary clinic in Moh Guan Terrace which

had been carrying on in very cramped conditions since 1948 in S.I.T. premises. Apart from all the usual Maternal and Child Welfare activities, it also provides selected cases for teaching purposes to medical students at the University, who meet here once a week.

5. *Mobile Anti-Diphtheria Immunisation Team.*—In the previous October an Immunisation Service had been started by the Health Department in Community Centres, the Maternal and Child Welfare Department lending staff to help. In February 1958 this work was brought under the control of the Maternal and Child Welfare Department which had been responsible for the immunisation programme in the clinics since its inception in 1939. It attempted to bring immunisation to the people in order to save them the trouble of coming to the Clinics. The team worked under great difficulties such as provision of transport for all the members to and from locations sometimes in unsuitable buildings with no facilities for sterilisation except their own portable stoves, and it entailed much liaison work with community centre leaders, and authorities owning buildings which could be borrowed, and still required home visiting by our Health Visitors to remind those who failed to return for second injections. These difficulties increased as the staff shortages became desperate, and when the polio epidemic broke out, and anti-diphtheria immunisation was suspended, this mobile team had to cease functioning.

STAFF

Doctors.—Dr. N. R. Tan returned to the Department at the end of June after successfully obtaining the Diploma of Public Health from the University of Malaya.

Dr. Tan Cheng Im left for U.K. in August to undertake a course leading to the Diploma of Child Health in Great Ormond St. Hospital.

Dr. Ivy Chew resigned from the service w.e.f. September. It was not possible to fill her post until November when Dr. Diana Loh Pui Ying joined the service.

Except for a few days, the department was thus short of 1 Doctor away on study leave throughout the year. With another Doctor on normal earned vacation leave, and for some months with 1 vacant post unfilled, the expansion projects to be planned and fulfilled, and the administration of the department was a great strain indeed. Alexandra Road Clinic had perforce no Doctor for several months, the nursing staff having to manage the best they could with advising and immunising only, referring all cases for treatment to the nearest City Council dispensary at Prince Phillip Avenue, or to General Hospital, but many patients found their way to the Institute of Health adding to the case load there.

Resignations.—2 Health Sisters and 3 Health Visitors resigned during the year.

Dismissal.—1 Midwife was dismissed.

New Staff.—The intake of new staff sufficient to fill the vacancies and to man new projects was not easy and the time lag before it could be finally achieved threw extra strain on existing staff.

Examinations.—The Departmental Health Visitors Examination to cross the Bar at \$411 was held in March after a course of lectures held weekly in the past year. 20 Health Visitors sat for this exam, the external examiner being Miss Sankey, the W.H.O. Sister Tutor of the Public Health Nursing Course. 17 Health Visitors passed this examination. Those referred were given a re-exam in August and were successful, together with a fresh examinee attempting it the first time.

The Departmental Vaccinators Examination to cross the Bar at \$187 was held in March. The Vaccinator who sat for it failed and was given a second chance later in July together with another vaccinator attempting it the first time when they managed to satisfy the examiner.

Co-operation with other agencies.—As has been customary in the past, the Staff assisted in Baby Shows held outside working hours at the request of various organisations—e.g. the Tiong Bahru Community Centre, the Chinese Y.M.C.A., and St. Johns Ambulance Brigade.

In the Geylang Fire in Lorong Koo Chye, staff and equipment were rapidly mobilised from the first night to run the milk feeding of children and old people. They worked in three 8 hour shifts throughout the duration of the refugee camp at the Geylang School for nearly 1 month from 5/4–27/4. In addition a casualty station was run every afternoon by one of the Doctors of the Maternal and Child Welfare Department for the treatment of minor ailments of the inhabitants of the Camp. The staff have by now gained considerable experience in this kind of emergency work in Civil Disasters, having assisted in a previous Lorong 3 fire in September 1953 where the refugees were camped in the Lee Rubber Godown; in the Aljunied kampong fire October—November 1953 when the refugees were camped in the Badminton Hall; in St. Andrew's School where flood victims were camped in December 1954 and in the Silat Road fire September 1955 where the victims camped in the Old Airport building.

In the Mass Health movement campaign the nursing staff were able to assist both during duty hours in the exhibitions and in clinics, and district visiting and also outside duty hours spreading health propaganda.

During the Polio epidemic, 1 Senior Sister and 10 Health Visitors and 5 Clerks were seconded for polio vaccine feeding, co-operating with Government Health Staff and working in close liaison for two months. 4 of the Health Visitors were lent to Middleton Hospital to assist the staff there with the nursing of the increased cases, in addition to the 2 already there for training in Fever Nursing.

Dr. MAGGIE LIM,
*Senior Assistant Health Officer,
Maternity and Child Welfare Department.*

MIDDLETON HOSPITAL

I HAVE THE HONOUR to submit the Annual Report of the Middleton Hospital for the year 1958.

Table below shows the number of admissions, discharges, deaths, etc., during the year.

Table I

Diseases	Remain- ing 31-12-57	Admit- ted	Dis- charged	Transfer	Died	Remain- ing 31-12-58
Chicken-pox	13	472	485	..	..	..
Chicken-pox/Broncho pneumonia ..	..	1	..	..	1	..
Diphtheria	38	548	529	1	34	22
Diphtheria Carriers	6	315	313	..	..	8
A. A. Poliomyelitis (Paralytic) ..	20	390	139	113	12	146
A. A. Poliomyelitis (non-paralytic) ..	..	11	11	..	..	..
Post Poliomyelitis .. ..	..	3	3	..	..	..
Typhoid Fever	11	127	129	1	4	4
Post Diphtheritic Paralysis .. ..	..	2	2	..	..	..
Measles	4	310	313	..	..	1
Measles/Broncho pneumonia .. ..	..	44	34	..	10	..
Measles/Gastro-enteritis .. ..	..	4	2	..	2	..
T.B. Meningitis .. ..	..	7	7	..	..	..
Mumps .. ..	..	43	43	..	..	..
Whooping cough .. ..	..	38	37	..	1	..
Amoebic Dysentery	2	156	156	..	2	..
Bacillary Dysentery (Flexner) ..	1	37	38	..	..	..
Bacillary Dysentery (Sonne) .. ..	..	23	23	..	..	..
Clinical Dysentery	2	92	93	..	1	..
Rubella .. ..	..	7	7	..	..	..
Transverse Myelitis .. ..	..	3	1	1	1	..
Erysipilas .. ..	..	1	1	..	..	..
Encephalitis .. ..	..	10	5	1	4	..
Malaria S.T. .. ..	..	1	1	..	..	..
Ascariasis .. ..	..	6	6	..	..	..
Scrub Typhus .. ..	..	1	1	..	..	..
Pulmonary Tuberculosis .. ..	..	7	4	3	..	..
Hemiplegia Right .. ..	..	2	2	..	..	..
Vincent's Angina .. ..	..	2	1	..	1	..
Influenza .. ..	..	40	39	..	1	..
Mental Difficiency/Clinic Dysen- tery .. ..	..	1	..	..	1	..
Stomatitis .. ..	..	2	1	1	..	..
Observation/Carriers/Other Di- seases	4	973	947	13	8	9
Total ..	101	3,679	3,373	134	83	190

During the year there were 3,679 admissions with 83 deaths a mortality rate of 2.27 per cent.

DANGEROUS INFECTIOUS DISEASES

There were no cases of small-pox, cholera or plague.

DIPHTHERIA

Table II

DIPHTHERIA ADMISSIONS AND DEATHS FOR THE LAST 10 YEARS

Year	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958
Admissions ..	220	222	370	427	332	345	460	552	712	548
Deaths ..	42	28	91	80	47	34	41	47	58	34
Mortality rate	19.09%	12.61	24.59	18.73	14.15	9.86	8.91	8.51	8.14	6.20%

Table III

MONTHLY DIPHTHERIA ADMISSIONS AND DEATHS FOR THE YEAR

Month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Admissions ..	76	53	60	25	36	46	48	43	40	53	38	30	548
Deaths ..	3	1	6	..	5	3	1	7	2	3	1	2	34

During the year the number of diphtheria admissions remained at a high level. 548 cases of diphtheria were admitted with 34 deaths, a mortality rate of 6.20 per cent the lowest on record. 6 cases died within 24 hours after admission. 64 cases required tracheotomy operation of which 15 died. In addition there were 315 cases of Diphtheria carriers.

It is gratifying to note that the Medical Advisory Committee has recommended to the Minister of Health that diphtheria immunization of young children should be made compulsory and it is to be hoped that when this is enforced, diphtheria will soon become a thing of the past.

Table IV

REGIONAL DISTRIBUTION OF DIPHTHERIA ADMISSIONS BY MONTH

Month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Urban ..	65	47	49	17	31	39	40	40	33	42	29	26	458
Rural ..	11	6	11	8	5	7	8	3	7	11	9	4	90

Table V

DIPHThERIA ADMISSIONS AND DEATHS BY AGE AND SEX GROUP

Age group			ADMISSIONS		Total Admissions	DEATHS		Total Deaths
			M.	F.		M.	F.	
Under	1 year	..	21	16	37	3	..	3
	1 year	..	24	27	51	2	8	10
	2 years	..	39	28	67	2	2	4
	3 years	..	40	31	71	2	2	4
	4 years	..	28	26	54	5	3	8
	5 years	..	18	26	44	..	1	1
	6 — 10 years	..	73	83	156	1	2	3
	11 — 14 years	..	19	16	35	..	1	1
	15 — 19 years	..	10	3	13	..	..	..
	20 +	..	5	15	20	..	..	..
Total ..			277	271	548	15	19	34

Table VI

DIPHThERIA ADMISSIONS AND DEATHS BY ETHNIC GROUP

Nationality			ADMISSIONS		Total	DEATHS		Total
			M.	F.		M.	F.	
Europeans	..	..	2	..	2	..	..	..
Eurasians	..	..	2	..	2	..	..	..
Chinese	..	..	256	242	498	15	18	33
Indians	..	..	5	15	20	..	..	..
Malays	..	..	8	11	19	..	1	1
Others	..	..	4	3	7	..	..	..
Total ..			277	271	548	15	19	34

Table VII

DIPHThERIA :—TYPE OF CASES AND DEATHS

Type				Admissions	Deaths
Laryngeal	..	..	..	134	28
Nasopharyngeal	..	..	..	45	..
Faucial	..	..	..	323	6
Nasal	..	..	..	42	..
Aural	..	..	..	4	..
Total ..				548	34

Table VIII

DIPHTHERIA: ADMISSIONS, DEATHS AND TRACHEOTOMY OPERATIONS

Total Admissions	..	..	..	548
Total Deaths	..	..	..	34
Case mortality rate	..	..	..	6.20%
Number of Tracheotomies done	..	..	..	64
Number of deaths after Tracheotomy	..	..	..	15

POLIOMYELITIS

There were 404 admissions during the year of which 393 were paralytic and 11 non-paralytic. 3 cases of post-poliomyelitis were admitted. The case fatality rate was low: There were 12 deaths, a mortality rate of 2.97 per cent.

Table IX

A. A. POLIOMYELITIS. POLIOMYELITIS ADMISSIONS AND DEATHS FOR LAST 10 YEARS

Year	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958
Admissions ..	68	81	78	50	41	71	19	29	52	404
Deaths ..	2	10	8	8	5	2	2	..	5	121

Table X

POLIOMYELITIS ADMISSIONS AND DEATHS BY MONTH

Month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Admissions ..	1	..	1	1	1	2	1	7	33	174	116	67	404
Deaths ..	..	..	..	..	..	..	..	..	..	5	4	3	12

Table XI

REGIONAL DISTRIBUTION OF POLIO CASES BY MONTH

Month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Urban ..	1	..	1	1	1	1	..	6	21	127	82	37	278
Rural ..	..	..	..	..	..	1	1	1	12	47	34	30	126
Total ..	1	..	1	1	1	2	1	7	33	174	116	67	404

Table XII

AGE GROUPS, ETHNIC GROUPS AND SEX OF POLIOMYELITIS CASES

Age Group			EUROPEANS		EURASIANS		CHINESE		INDIANS		MALAYS		OTHERS		TOTAL	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F
Under 1 year	..	..	..	..	..	..	28	26	5	7	5	5	..	..	38	38
1 year	..	..	..	..	..	..	32	27	3	1	2	1	..	1	37	30
2 years	..	..	..	..	..	..	49	40	7	6	7	7	1	..	64	53
3 years	..	..	..	..	1	..	29	14	3	2	..	2	*2	2	35	20
4 years	..	..	..	..	..	..	8	5	2	..	..	..	..	1	10	6
5 years	..	..	..	..	..	..	6	6	..	..	..	..	..	..	6	6
6-10 years	..	..	..	..	..	..	10	9	3	1	1	2	..	..	14	12
11-14 years	..	..	..	..	..	2	4	1	..	..	..	..	..	..	4	3
15-19 years	..	..	1	..	..	..	3	..	..	..	..	..	..	..	4	..
20 +	..	..	2	..	..	..	12	5	1	1	2	..	†1	..	18	6
Total	..	..	3	..	1	2	181	133	24	18	17	17	4	4	230	174

*Javanese †Australian

POLIO ADMISSIONS AND DEATHS BY ETHNIC GROUP

				<i>Admissions</i>		<i>Deaths</i>	
Europeans	..	..	..	3		..	
Eurasians	..	..	..	3		..	
Chinese	..	..	..	314		11	
Indians	..	..	..	42		1	
Malays	..	..	..	34		..	
Javanese	..	..	..	5		..	
Australian	..	..	..	1		..	
Others	..	..	..	2		..	
Total				404		12	

The outstanding feature of the year was the largest outbreak of poliomyelitis in the history of Singapore. It started in late August, reached its peak in October, and had subsided by the end of December. There were 7 cases from January to July, 6 in August, 30 in September, 174 in October, 116 in November and 66 in December. At the height of the outbreak, there were as many as 30 admissions daily for suspected poliomyelitis. The extensive publicity given to the outbreak in the press and radio, resulted in any child with the slightest pain or limp or alleged weakness in the limbs being sent immediately to the hospital.

This of course threw a great strain on the resources of the hospital. It is my pleasure to record that the Staff responded magnificently to the situation and indeed their efforts evoked praise from the public on a number of occasions.

Age Groups.—The main incidence of the disease was in children of pre-school age. Children below 5 and especially below 3 years formed the most vulnerable group. However, older children and even adults were by no means immune. There were 24 cases among adults. The youngest patient was aged 40 days and the oldest 56 years.

Sex.—There were appreciably more male cases (230) than female cases (174). It may be that males have less resistance to the disease than females.

Ethnic Groups.—There was a conspicuous absence of cases among European children due possibly to previous immunization with the Salk Vaccine.

Case Fatality Rate.—12 fulminating cases with respiratory paralysis and inability to swallow died. The mortality rate was low (2.97 per cent) compared with that of epidemics in various parts of the world (5 to 70 per cent).

Paralysis.—11 cases were non-paralytic. The 393 paralytic cases had varying degrees of paralysis, ranging from minimal weakness to the most extensive paralysis requiring the use of a breathing machine.

Iron Lung.—In all 14 cases required the aid of the iron lung; of these 5 survived and 9 died. The cases which survived were all weaned from the lung after approximately two weeks.

Stool culture for polio virus.—This was carried out by Professor Hale in the Department of Bacteriology, University of Malaya. Of a total of 473 specimens (including specimens from suspected cases which later proved to be not poliomyelitis). 257 were negative and 216 were positive as follows:

Type I Polio virus	..	..	..	..	187
Attenuated Type II (post-Sabin)			..	..	1
Type I and attenuated Type II polio virus (Post-Sabin)				..	2
Type III	..	..	..	..	1 (admitted 3-1-58)
Echo	..	..	..	..	7
Cosackie	..	..	..	..	2
Enterovirus other than polio but (untyped)			..	..	11
Awaiting typing	..	..	..	..	5
					<hr/> 216 <hr/>

It was shown early in the outbreak that a Type I Virus was responsible. This was confirmed by subsequent routine stool culture. In 20 cases, an enterovirus other than the polio virus was isolated.

Post-Sabin cases.—17 paralytic cases gave a history of having taken the Sabin vaccine (Type II) previously. The majority were incubating the disease when they took the vaccine but in 4 cases the onset of the disease occurred more than 3 weeks after taking the vaccine which apparently had failed to protect the children concerned.

Transfer of cases.—To relieve the accumulation of cases in the hospital and to provide beds for acute cases, 109 cases of post-poliomyelitis who had passed the period of isolation (3 weeks) were transferred to the General Hospital and 4 cases to the St. Andrew's Mission Hospital.

Non-Poliomyelitis cases.—In addition to the poliomyelitis cases, a large number (242) of cases of diverse aetiology were referred to the hospital by doctors for suspected poliomyelitis. The commonest cause of confusion were cases of influenza, rheumatic arthritis and myalgia. Other cases were encephalitis, tuberculous meningitis, transverse myelitis, mumps, rubella, malaria, cerebral embolism, chorea, bronchopneumonia, bronchitis, acute rheumatism, peripheral neuritis, abscesses of thigh and leg, hysteria, bursitis, serum sickness, gastroenteritis, malnutrition post-measles debility, congenital syphilis, whooping cough, pulmonary tuberculosis, beri-beri, pleural effusion, ulcer of scalp, pneumonitis, urticaria, epilepsy, Park-insonism, Carcinoma of Pancreas and congenital heart disease.

Some of the cases make interesting reading.

One case of infective hepatitis with jaundice was sent in as suspected poliomyelitis because the patient complained of fever and weakness. Another doctor, without seeing his patient, rang up for the ambulance and sent her straight to Middleton Hospital when she telephoned him to say that she was feeling a bit breathless—all she had was a blocked nose due to a cold.

Table XIII

TYPHOID FEVER, ADMISSIONS AND DEATHS BY ETHNIC GROUP
(Deaths in brackets)

Age			0-10		11-19		20 plus		Total	
Sex			M	F	M	F	M	F	M	F
Eurasians	..	..	..	..	..	..	1	..	1	..
Chinese	..	..	16 (1)	8 (1)	20	10	18(1)	17	54(2)	35 (1)
Indians	..	..	..	1	2	..	5	2	7	3
Malays	..	..	6	2 (1)	5	2	5	4	16	8 (1)
Others	..	..	..	..	..	..	3	..	3	..
Total ..			22(1)	11 (2)	27	12	32(1)	23	81(2)	46 (2)

Table XIV

TYPHOID FEVER—ADMISSIONS AND DEATHS BY MONTH

Month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Admissions ..	10	8	15	16	16	8	14	13	12	10	..	5	127
Deaths ..	1	..	1	..	..	..	..	..	..	2	..	..	4

127 cases of typhoid fever were admitted with 4 deaths. Of these there were 4 imported cases among seamen (2 Chinese, 1 Scot and 1 Japanese) 25 cases were from the rural area. 3 cases occurred in one household at Jalan Melayu but it was not possible to trace the source of infection.

A total of 364 persons employed by various Ice Cream Manufacturers and Dairy farms were investigated for the typhoid Carriers State: 4 were found to be Carriers.

CHICKEN-POX

473 cases of Chicken-pox were admitted during the year. There was one fatality in a Chinese girl, aged 2 years with Broncho-Pneumonia.

During the height of the poliomyelitis outbreak in October, admission of Chicken-pox cases was stopped, after consultation with the Director of Medical Services, due to an acute shortage of accommodation and staff.

Table XV

CHICKEN-POX: AGE, SEX AND ETHNIC GROUP

Age			0-10		11-19		20 plus		Total		Grand Total
Sex			M	F	M	F	M	F	M	F	
Eurasians	..	..	4	..	3	..	5	2	12	2	14
Chinese	..	..	41	33	22	9	21	8	84	50	134
Indians	..	..	35	27	29	8	114	14	178	49	227
Malays	..	..	12	11	15	4	21	4	48	19	67
Others	..	..	11	3	4	2	10	..	25	5	30
Total ..			103	74	73	23	171	28	347	125	472

As in previous years, male adult Indians formed the largest single group of cases.

Table XVI

CHICKEN-POX:—REGIONAL DISTRIBUTION BY MONTH

Month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Urban	68	45	80	54	34	32	20	27	32	17	..	..	409
Rural..	14	3	14	7	4	4	1	4	5	7	..	..	63
Total ..	82	48	94	61	38	36	21	31	37	24	..	..	472

Table XVII

DYSENTERY

TYPE OF DYSENTERY

				Admissions	Deaths
Amoebic Dysentery	..	..		156	2
Bacillary Dysentery	(a) Flexner	..		37	..
	(b) Sonne	..		23	..
Clinical Dysentery	..	..		92	1
Total ..				308	3

Table XVIII

ADMISSIONS OF THE MORE IMPORTANT DISEASES FOR THE LAST 10 YEARS

Diseases		1949	1950	1951	1952	1953	1954	1955	1956	1957	1958
Small-pox	..	..	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..	..	..
Chicken-pox	..	373	422	610	450	836	1,313	1,769	1,488	1,039	472
Chicken-pox / Broncho / Pneumonia	..	..	..	..	..	..	..	..	..	..	..
Measles	..	194	50	204	142	117	182	200	301	153	357
Rubella	..	6	1	11	9	..	1	..	86	36	7
Diphtheria	..	218	222	370	427	382	345	460	552	712	547
Cerebro-spinal/Meningitis	..	4	4	4	2	4	2	..	..	..	4
Typhoid Fever	..	62	88	91	117	91	125	114	76	118	127
Acute Anterior Poliomyelitis	..	68	81	78	50	41	70	19	37	52	405
Erysipelas	..	15	12	4	3	..	3	..	2	3	1
Whooping Cough	..	8	27	5	3	..	10	5	85	30	38
Scarlet Fever	..	..	..	79	..	..	..	..	..	1	..
Mumps	..	3	14	..	15	9	35	54	52	14	43
Tropical Typhus	..	8	3	7	92	4	7	..	1	..	1
Amoebic Dysentery	..	106	90	105	22	134	122	136	126	197	156
Bacillary Dysentery	..	11	9	18	9	25	18	17	26	74	60
Clinical Dysentery	..	..	17	40	..	16	34	35	63	150	92
Other diseases/carriers	..	..	..	..	..	..	..	..	..	..	..
Observation	..	602	731	591	455	440	647	503	936	1,083	1,368
Total	..	1,678	1,771	2,217	1,796	2,049	2,914	3,312	3,831	3,662	3,679

Table XIX
OTHER DISEASES

Other Diseases	Remain- ing 31-12-57	Admit- ted 1958	Dis- charged	Transfer to Hospital	Died	Remain- ing 31-12-58
Acute Tonsillitis	1	138	138	..	..	1
Acute Laryngitis	16	16	..	..	..
Acute Nasopharyngitis	8	8	..	..	..
Acute Bronchitis	6	6	..	..	..
Pyrexia of Unknown origin	1	126	127	..	..	..
Rheumatic Fever	2	2	..	..	..
Rheumatoid Arthritis	9	9	..	..	..
Gastritis	4	4	..	..	..
Gastro-enteritis and Colitis	2	32	33	..	1	..
Appendicitis	2	2	..	..	..
Nasopharyngeal Carcinoma	1	..	..	1	..
Lobar Pneumonia	5	3	..	2	..
Haemorrhoids	3	3	..	..	..
Anaemia	1	1	..	..	..
Amoebic Hepatitis	1	1	..	..	..
Infective Hepatitis	1	1	..	..	..
Pyelitis	1	1	..	..	..
Polyneuritis	3	3	..	..	..
Dermatitis	2	2	..	..	..
Ulcer of Palate	6	6	..	..	..
Ulcer Intestinal	1	..	..	1	..
Pharyngeal Ulcer	1	1	..	..	..
Adenitis	2	2	..	..	..
Radial Nerve Paralysis	1	1	..	..	..
Ludwig's Angina	1	1	..	..	..
Myalgia	6	6	..	..	..
Subarachoid Haemorrhage	1	1	..	..	..
Cerebral Haemorrhage	1	..	..	1	..
Cardiac Failure/Malnutrition	1	..	..	1	..
Impetigo	6	6	..	..	..
Malnutrition	1	1	..	..	..
Typhoid Carriers	364	364	..	..	..
Endocarditis	1	1	..	..	..
Liver Abscess	1	1	..	..	..
Carcinoma (Pancreas)	1	..	1	..	..
Congenital Heart Disease	2	1	..	1	..
Congenital Syphilis	1	1	..	..	..
Epilepsy	1	1	..	..	..
Asthmatic Bronchitis	1	1	..	..	..
Osteitis of Hip	1	1	..	..	..
Hyperemesis Gravidarum	1	1	..	..	..
Hysteria	1	1	..	..	..
Menopausal Syndrome	1	1	..	..	..
Bursitis	1	1	..	..	..
Allergic Rash	1	..	1	..	..
Drug Rash	4	4	..	..	..
Parkinsonism	1	1	..	..	..
Pneumonitis	1	1	..	..	..
Chorea (rheumatic)	1	1	..	..	..
Pleural Effusion	3	2	1	..	..
Beri-Beri	1	1	..	..	..
Abscess of thigh	4	4	..	..	..
Broncho-pneumonia	4	4	..	..	..
Nothing abnormal detected	2	2	..	..	..
Urticaria	1	1	..	..	..
Scalp ulcers	1	1	..	..	..
Thrush	3	3	..	..	..
Observation	180	162	10	..	8
Total	4	973	947	13	8	9

MALARIA S.T.

1 Malay male baby aged 1 year 10 months, resident in Bukit Timah Road, $6\frac{1}{2}$ miles, was admitted with falciparum malaria during the year. There was a history of a brief sojourn in Johore shortly before the illness.

MEASLES

359 cases were admitted with 10 deaths from Broncho-Pneumonia and Gastro-enteritis.

Table XX

NO. OF ADMISSIONS, DAYS IN HOSPITAL AND DEATHS BY ETHNIC GROUPS

Ethnic Group	REMAINING 1957		ADMITTED 1958		TOTAL		Deaths
	No. of Patients	No. of Days in Hospital	No. of Patients	No. of Days in Hospital	No. of Patients	No. of Days in Hospital	
Europeans	2	451	31	389	33	840	1
Eurasians	2	6	46	434	48	440	..
Chinese	68	4,719	2,494	29,012	2,562	33,731	78
Indians and Pakistanis ..	16	69	625	5,531	641	5,600	1
Malays	13	130	368	3,279	381	3,409	2
Javanese .. ..	..	..	54	396	54	396	1
Others .. ..	..	..	61	458	61	458	..
Total ..	101	5,375	3,679	39,499	3,780	44,874	83

Table XXI

Sex	Remaining 1957	Admitted 1958	Total Treated	Discharged	Transferred	Died	Remaining 1958	Deaths %	Average Number of Patients
Male	55	2,171	2,226	2,024	76	40	86	..	..
Female	46	1,508	1,554	1,349	58	43	104	..	..
Total ..	101	3,679	3,780	3,373	134	83	190	2.19%	123

Maximum capacity of the hospital = 250 beds.

AMBULANCE

A total of 1,155 cases of infectious diseases were removed by the Hospital Ambulance during the year.

HOSPITAL IMPROVEMENT

A boiler was obtained from the City Engineer and installed in the laundry to replace the old boiler which was condemned by the Government Inspector of Machinery as unfit for further service.

STAFF

Dr. R. S. Corbitt acted as Medical Superintendent from 1st January, 1958 to 5th January, 1958.

From 6th January, 1958 to 5th May, 1958 Dr. V. M. S. Thevathasan, S.A.H.O., acted as Medical Superintendent.

From 6th May, 1958 Dr. Leong Kwok Wah acted as Medical Superintendent after six months leave in U.K.

Sister Grace Kee Soon Bee resumed duty on 5th September, 1958 after completing her Colombo Plan Scholarship training in Australia.

To cope with the poliomyelitis outbreak, one temporary doctor was employed on a sessional basis and six attendants were recruited on a day-to-day basis.

ACKNOWLEDGMENTS

We are grateful to Professor Monteiro and Professor Ransome for acting as consultants and to Professor Karlen and Mr. Gunn for supervising the orthopaedic treatment of post-poliomyelitis cases.

I would like to extend my thanks to the Staff for their excellent work during the poliomyelitis outbreak and for their co-operation and loyalty during the year.

Dr. K. W. LEONG,
*Acting Medical Superintendent,
Middleton Hospital,
Singapore.*

CITY ABATTOIRS

I HAVE THE HONOUR to submit my report for the year ending 31st December, 1958.

During the year 501,475 animals were slaughtered in the City Abattoirs: 417,199 were swine, 5,102 oxen, 862 buffaloes, 39 horses, 74,048 sheep and 4,225 goats.

245 swine, 9 oxen, 2 buffaloes, 529 sheep and 183 goats died in the pens.

67 swine died in the depot.

53 swine, 22 oxen, 7 buffaloes, 41 sheep and 5 goats (all carcasses) were totally condemned.

I have the honour to be,

Sir,

Your obedient servant,

M. G. BYRNE,

Acting Superintendent of Abattoirs.

	Swine	Oxen	Buffaloes	Horses	Sheep	Goats
Admitted for slaughter, 1958 ..	417,521	5,128	859	39	74,626	4,397
Slaughtered 1958 ..	417,199	5,102	862	39	74,048	4,225
Died in pens ..	245	9	2	..	529	183
Died in depot ..	67	..	..	..	..	..
Carcasses condemned ..	53	22	7	..	41	5
Diseased organs, etc. condemned and destroyed in tons ..	11	4.1	1.4	..	8.4	0.1
Released at owner's request ..	..	..	1	..	..	..

TOTAL RECEIPTS FOR THE YEAR 1958

	\$	c.
Fee for slaughter at Cattle Section ..	18,078	00
Fee for slaughter at Sheep Section ..	79,023	00
Fee for slaughter at Pig Section ..	835,042	00
Fee for storage at French Road Depot ..	8,459	45
Fee for inspection of wild boar carcasses ..	238	00
Receipts for sale of blood and pigs' bristles ..	120	00
Receipts as pen rents (all slaughter houses) ..	35,576	40
Total Receipts for the year 1958 ..	976,536	85
Less refund of slaughter fees ..	1,238	00
Total Net Receipts for the year 1958 ..	975,298	85
Total Net Receipts for the year 1957 ..	974,689	20

Special slaughtering licences issued during the year 1958:

4 pigs @ \$10 each, 22 sheep and 5 goats @ \$5 each .. 185 00

REPORT FOR THE YEAR ENDING 31ST DECEMBER, 1958

	Swine	Oxen	Buffaloes	Sheep	Horses	Goats
Number slaughtered ..	417,199	5,012	862	74,048	39	4,225
Died in pens ..	245	9	2	529	..	183
Died in depot ..	67	..	..	..	..	..
Carcases condemned ..	53	22	7	41	..	5
Diseased organs, etc. condemned and destroyed in tons ..	11	4.1	1.4	8.4	..	0.1

CASES OF PARTIAL CONDEMNATION

	Swine	Oxen	Buffaloes	Sheep	Goats
Abscesses ..	15,743	1	..	..	..
Angiomatosis ..	..	8	..	..	..
Bruising / Fracture ..	2,538	66	1	174	2
Caseous Lymphadenitis ..	..	..	..	9,527	..
Cirrhosis ..	176	6	..	10	2
Congestion ..	18,716	8	4	8,847	4
Cysts ..	91	3	4	38	15
Degeneration ..	17	..	..	27	..
Fascioliasis ..	..	1,717	174	1	19
Fatty Infiltration ..	81	9	..	739	1
Hydronephrosis ..	134	..	..	..	..
Inflammation ..	178	7	8	60	..
Maggots ..	..	..	..	46	3
Mastitis (Mammitis) ..	..	12	..	..	..
Melanosis ..	..	..	..	4	2
Metritis ..	..	4	..	..	..
Necrosis ..	17	..	..	..	..
Nephritis ..	228	..	..	25	..
Onchocerciasis ..	..	203	..	..	..
Parasites ..	159	..	..	..	..
Pericarditis ..	10	..	2	..	..
Pleurisy ..	719	..	..	131	12
Pneumonia ..	745	11	3	89	32
Pregnancy ..	30	99	25	..	7
Sarcosporidiosis ..	..	..	526	..	..
Strongylosis ..	..	..	..	578	1
Tuberculosis ..	..	71	..	..	..

CASES OF TOTAL CONDEMNATION FOR THE YEAR 1958

	Swine	Oxen	Buffaloes	Sheep	Goats	Total
Bruising—Generalised ..	2	1	..	1	1	5
Cysticercosis (Measles) ..	10	1	..	..	..	11
Dropsy with Emaciation ..	5	1	2	1	..	9
Jaundice ..	8	1	..	5	..	14
Mammitis—Septic ..	..	2	..	..	..	2
Metritis—Septic ..	..	2	..	..	..	2
Pyrexia ..	20	..	..	31	..	51
Pneumonia—Gangrenous ..	1	1	..	..	3	5
Sarcosporidiosis ..	..	..	5	..	..	5
Septicaemia ..	2	4	..	2	..	8
Swine Fever ..	2	..	..	..	..	2
Tuberculosis—Generalised ..	..	7	..	..	..	7
Extreme Emaciation ..	1	2	..	..	1	4
Multiple Abscess ..	1	..	..	..	..	1
Pleurisy ..	1	..	..	1	..	2
Total ..	53	22	7	41	5	128

ANIMALS SLAUGHTERED MONTHLY IN THE CITY ABATTOIRS DURING THE YEAR 1958

	Swine	Oxen	Buffaloes	Horses	Sheep	Goats
January ..	35,647	459	87	..	5,610	390
February ..	34,474	294	69	5	5,406	334
March ..	38,417	231	222	6	6,468	308
April ..	34,310	434	122	4	5,973	330
May ..	35,099	464	48	2	5,837	310
June ..	34,854	511	19	7	6,255	418
July ..	34,221	481	60	6	6,325	299
August ..	36,485	474	22	..	6,728	357
September ..	33,374	419	25	..	5,974	301
October ..	33,455	507	24	2	6,057	405
November ..	33,676	428	89	2	6,687	426
December ..	36,187	400	75	5	6,728	347
Total 1958 ..	417,199	5,102	862	39	74,048	4,225
Total 1957 ..	420,864	4,004	2,516	26	69,073	3,636

M. G. BYRNE,
Acting Superintendent of Abattoirs.

PUBLIC HEALTH INSPECTORS SECTION

STAFF

THE STAFF as at 31st December, 1958 was comprised of the Chief Public Health Inspector, two Divisional Public Health Inspectors, three Senior Public Health Inspectors, one Chief Food and Drugs Inspector, two Food and Drugs Inspectors, twenty qualified Public Health Inspectors and nine probationary Public Health Inspectors.

Leave.—Mr. Lee Kwong Soon, Deputy Chief Public Health Inspector, is at present on sick leave in hospital, and it has been confirmed by the Health Committee that his post will be abolished when it falls vacant.

Resignation.—Mr. C. G. Clunies-Ross, Senior Public Health Inspector, resigned from City Council Service on 15th October, 1958.

Mr. Seah Cheng Hock, qualified Public Health Inspector, resigned from City Council Service on 10th October, 1958.

Mr. J. W. Bennett, Chief Public Health Inspector, resigned from City Council Service with effect from 1st January, 1959.

Diploma of Royal Society of Health.—During the year Messrs. Goon Peng Yam, Charlie Chan Boon Kwang, and Wong Keng Mun attended the Royal Society of Health Course held in Singapore. All were successful in obtaining the Diploma.

Messrs. R. Rajakrishna and Sunny Choo Chiang Cheng, who left Singapore in February 1957 on a Colombo Plan Scholarship for the Royal Society of Health Course held in New Zealand, returned in June 1958 after having passed the final examination.

SANITARY WORK

During the year there were 10,604 man-working days. Of these 1,139 days vacation leave were granted and 204 sick leave taken. 1,338 days were spent for Meat Inspection at the City Abattoirs. The remaining 7,923 days were utilised as follows:—

Kampong Inspections.—Kampong Inspections were carried out in connection with Kampong Sanitation and the enforcement of the Swine By-laws. 145 man-working days were spent during which 2,331 huts were inspected.

Complaints Investigation.—A total of 2,245 complaints were received from the general public during the year involving 30,554 visits.

Complaints			No. of Complaints	Primary Visits	Revisits	Total visits
Mosquitoes	..	..	1,011	11,096	} 14,809	30,554
Others	..	..	1,234	4,649		

Mosquito breeding was found in 3,885 premises.

Infectious Diseases.—The following cases of Infectious Disease were investigated and dealt with:—

Polio-myelitis	Diphtheria	Chicken-pox	Typhus	Typhoid	Leprosy
252	414	524	1	95	84

3,521 throat swabs were taken from diphtheria contacts where necessary.

3 cases of Infectious Disease were removed to Middleton Hospital by the Public Health Inspectors.

27 premises in which cases of Poliomyelitis occurred and their vicinities were dealt with by barrier spraying.

In the investigation of Infectious Diseases a total of 3,343 visits and revisits were made.

Meat Inspection.—Six Public Health Inspectors (3 qualified and 3 probationary) were sent monthly to the City Abattoirs to assist in the inspection of meat. A total of 1,338 man-working days was spent.

Food and Drugs.—1,368 samples were taken during the year by the Public Health Staff for Chemical analysis, bacteriological examination and breaches of the Food and Drugs Regulations, 1957, of which 576 samples were taken by the Public Health Inspectors and the remaining 792 by the Food and Drugs Inspectors.

217 samples were taken for bacteriological examination. For details, please see Appendix I, Table A.

Routine inspection of premises in connection with food and drugs was carried out by the Food and Drugs Inspectors involving 7,700 visits. 130,132 packages of unsound food and drugs were surrendered and destroyed. Please see Table B of Appendix I.

Offences and Prosecutions.—299 summonses were applied for for all types of infringements of the Ordinances and By-laws. There were 331 prosecutions with 280 convictions. 35 summonses were withdrawn, 28 not served and 9 cases acquitted. Total fines amounted to \$14,715.50.

Inspection of Premises.—Inspections carried out on other classes of premises not included in the above, total 47,479 visits as follows:—

Sauce Factories	..	..	..	168
Oilmills	..	..	..	179
Sawmills	..	..	..	74
Smoke Observations	..	..	..	14
Places of Entertainment	..	..	..	433
City Markets	..	..	..	65
Private Markets	..	..	..	33
Coffee Grinding Mills	..	..	..	53
Dry Cleaners	..	..	..	9
Goldsmiths	..	..	..	18
Printing Presses	..	..	..	465
Licensed Premises	..	..	..	28,545
Unlicensed Premises	..	..	..	923
Public Houses	..	..	..	542
Labour Ordinance	..	..	..	7
Hotels	..	..	..	356
Serving Notices	..	..	..	1,547
Inspecting Notices	..	..	..	2,058
Cautioning Cases	..	..	..	172
Other Premises	..	..	..	11,818

Total .. 47,479

In connection with the visits to:—

- (a) Places of Entertainment;
- (b) Printing Presses;
- (c) Public Houses;
- (d) Hotels.

These inspections were made with a view to putting up recommendations with regard to the licensing, registration or renewal of licences by Government.

Notices.—A total of 1,118 notices was served during the year. The following is a summary of notices served.

Type of Notices	B/f	Served	Total	Complied with	Can-celled	C/f
Intimation	136	677	813	587	90	136
Limewash	5	354	359	355	..	4
Nuisance	29	83	112	35	18	59
Abatement Order	2	3	5	3	..	2
Well	9	1	10	..	..	10
Total ..	181	1,118	1,299	980	108	211

Reports to Other Departments

City Cleansing Department ...	...	245
City Building Department ...	...	137
City Sewerage Department ...	...	117
City Fire Brigade ...	...	53
Other Departments ...	...	272
Total ...	...	824

Plague Prevention Section

Total number of rats caught in the City Area ...	4,464
Number of Fleas combed from the rats ...	4,933
Number of Mites combed from the rats ...	684
No plague infected rats were found.	

Cemetery Section

Burial in Public Cemeteries ...	14,722
Burial in Private Cemeteries ...	590
Total ...	15,312

Cremations ...	215
Exhumations ...	2

For Number of Burials by Races see Table C.

GENERAL

During the year, because of the absence on leave of inspectors and the transferring of inspectors to the City Abattoirs and the Secretariat for Health Education Work in connection with the Mass Health Campaign on Anti-Spitting, Anti-Litter and Anti-Pest the work of the department was seriously handicapped by shortage of staff. Considerable time was spent by our Inspectors in preparing stalls for the exhibitions and on duty at the Victoria Memorial Hall during the Mass Health Campaign.

House-to-house visits were made by the Inspectors in certain areas of the City in connection with the T.B. Survey conducted by Government under the Colombo Plan.

With the help of the Inspectors the City Council Mobile Dispensary, which started during the year, found its way into the kampongs.

Food and Drugs Section.—There was nothing outstanding in the Food and Drugs Section during the year except (1) The action on “Chilla Mata”, a kind of cosmetics, which is used locally for painting eye-brows. Samples of it were taken for analysis and it was found to be essentially lead sulphide. However, legal proceedings were not instituted against the vendors who surrendered their stocks to be destroyed. (2) In the latter part of the year information was received that unsound food was being imported into the Colony from Formosa. Investigations were made by the Food and Drugs Inspectors with a view to taking appropriate action on the importers. Action is also being taken by Government at the Harbour Board in checking all food coming into the Colony from Formosa.

TING SEW SAU,
Acting Chief Public Health Inspector.

APPENDIX I

Table A

SAMPLES TAKEN FOR CHEMICAL EXAMINATION

1. *Food*

Milk and Milk Products:—

Milk	...	...	158
Sweetened Condensed Milk			7
Evaporated Milk	...		1
Skimmed Milk Powder	...		30
Dried Milk	...	...	19
Butter	...	...	4
Cheese	...	...	1
Other Milk Products	...		10
			<hr/> 230 <hr/>

Coffee, Coffee Mixtures, Coffee Extracts, Cocoa and Tea:—

Coffee	...	...	38
Coffee Mixture	...		165
Coffee and Chicory	...		2
Tea	...	...	1
			<hr/> 206 <hr/>

Beverages:—

Whisky	...	...	6
Brandy	...	...	4
Rum	...	...	1
Stout	...	...	2
Champagne Perry	...		1
Carbonated and Non-carbonated Drink	...		255
			<hr/> 269 <hr/>

Edible Oil and Fats:—

Ground Nut Oil	...		5
Cooking Oil	...	...	17
			<hr/> 22 <hr/>

Sauces:—

Soya Bean Sauce	...		30
Tomato Sauce	...	...	6
Chillie Sauce	...	...	6
Sauce Mixture	...	...	2
			<hr/> 44 <hr/>

Spices and Condiments:—

Chinese Star Anise	...		1
Pepper Powder	...		19
Pepper Mixture	...		2
Coriander Powder	...		30
Other Spices	...	...	19
			<hr/> 71 <hr/>

Vinegars:—

Artificial Vinegar	...		10
Rice Vinegar	...	...	2
Malt Vinegar	...	...	1
Black Tap Vinegar	...		1
			<hr/> 14 <hr/>

Colouring, Flavouring and Preserving Agents:—

Flavouring Powder	...		1
Colouring Powder	...		1
			<hr/> 2 <hr/>

Confectionery	...	...	7
Meat and Meat Products	...		7
Fish and Fish Products	...		5
Fruit and Vegetable Products	...	...	37
Fresh Fruits	...	...	55
Other Foods	...	...	17

2. *Drugs*

B.P. and B.P.C. Drugs	...	...	27
Vitamins	...	...	32
Proprietary Drugs	...	...	51
Chinese Drugs	...	...	19
Other Eastern Drugs	...	...	3
Cosmetics	...	...	33
			<hr/> 165 <hr/>

APPENDIX I—*continued*

SAMPLES TAKEN FOR BACTERIOLOGICAL EXAMINATION

Ice Cream	...	...	...	124
Popsicles	...	...	...	84
Canned Vegetable Products	...	...	...	7
Canned Fish Products	...	...	...	2
Total				217

Table B

SUMMARY OF FOODSTUFFS AND DRUGS SURRENDERED AND DESTROYED

		<i>Packages</i>	<i>Weight</i>
Milk and Milk Products	...	64,378	} 50,684½ lb.
Fish and Fish Products	...	870	
Meat and Meat Products	...	354	
Vegetable and Fruit Products	...	716	
Other Canned Food	...	3,818	
Frozen Beef	...	19	
Wheat Flour	...	56	
Vegetables and Fruits	...	58,392	
Confectionery	...	471	
Oil and Fats	...	2	
Mascara ("Chilla Mata")	...	1,056	
		130,132	50,684½ lb.

Table C

1958				Burials and Cremations made in City Cemeteries and licensed burial grounds in City Area	Exhumations
Europeans	..	..	..	56 and 2 ashes	2
Eurasians	..	..	..	87 and 1 „	..
Chinese	..	..	..	13,172 and 3 „ (5)	..
Malays	..	..	..	1,312 (1)	..
Indians	..	..	..	640 (209)	..
Others	..	..	..	39	..
Total				15,306 and 6 ashes (215)	2

Figure in brackets denotes cremations.

CITY HALL DISPENSARY

A SHORT SUMMARY of the annual report of the three staff dispensaries for 1958 is submitted.

Table I
NO. OF ATTENDANCES AT THE THREE DISPENSARIES

			Main Dispensary	Lorong Lalat Dispensary	Alexandra Road Dispensary	Total
January ..	Staff ..	Open Vote	1,439 1,317	199 4,542	141 1,871	1,779 7,730
February ..	Staff ..	Open Vote	1,185 1,034	169 3,521	164 1,383	1,518 5,938
March ..	Staff ..	Open Vote	1,518 1,314	301 4,406	258 1,920	2,077 7,640
April ..	Staff ..	Open Vote	1,260 954	176 3,768	201 1,842	1,637 6,564
May ..	Staff ..	Open Vote	1,396 1,271	196 4,563	178 2,159	1,770 7,993
June ..	Staff ..	Open Vote	1,387 1,198	152 4,319	153 1,852	1,692 7,369
July ..	Staff ..	Open Vote	1,738 1,330	297 4,899	176 2,217	2,211 8,446
August ..	Staff ..	Open Vote	1,366 1,151	201 4,077	202 1,903	1,769 7,131
September	Staff ..	Open Vote	1,513 1,013	233 3,953	144 1,962	1,890 6,928
October ..	Staff ..	Open Vote	1,792 1,516	265 5,178	232 2,486	2,289 9,180
November	Staff ..	Open Vote	1,399 1,200	211 4,204	218 2,165	1,828 7,569
December ..	Staff ..	Open Vote	1,589 1,188	259 4,721	260 2,402	2,108 8,311
Total ..			32,068	54,810	26,489	113,367

Staff: 22,568

Open Vote: 90,799

In addition to the above, there were 1,117 staff attendances at Middleton Hospital and Maternity and Infant Welfare Clinics.

Table II

CHIEF CAUSES OF ILLNESS OF STAFF AND OPEN VOTE EMPLOYEES

Short Fevers	..	..	..	2,226
Diseases of the nervous system	..	..	..	8,542
Diseases of the respiratory system	..	..	..	13,007
Diseases of the Cardiovascular system	..	..	..	566
Diseases of the digestive system	..	..	..	5,370
Diseases of the urogenital system	..	..	..	958
Diseases of the eye	..	..	..	1,821
Diseases of the ear	..	..	..	3,980
Diseases due to deficiency	..	..	..	1,570
Diseases of the Skin	..	..	..	5,222
Dental Diseases	..	..	..	967
Tuberculosis	..	..	..	83
Venereal disease	..	..	..	245
Diabetes	..	..	..	588
Accidents and Injuries W.O.D.	..	..	..	3,928
Accidents and Injuries Off Duty	..	..	..	6,498
Eruptive Fevers	..	..	..	224
Other diseases	..	..	..	3,202
Total				58,997

There was no case of malaria reported during the year.

Table III

NO. OF DAYS' LEAVE GRANTED BY M.O. I/C STAFF, MIDDLETON HOSPITAL AND MATERNITY AND INFANT WELFARE CLINIC

				<i>Staff Disp.</i>	<i>M. Hosp.</i>	<i>M. and I. W.</i>
Staff	..	..	..	13,497	330	567
Open Vote	..	..	..	63,677	—	—
Total				77,174	330	567

Table IV

NO. OF PATIENTS TREATED BY PRIVATE PRACTITIONERS AND LEAVE GRANTED

					<i>No. of Cases</i>	<i>No. of Days' Leave</i>
Staff	..	..	..	..	1,942	5,605
Open Vote	..	..	..	..	15,980	32,500
Total				..	17,922	38,105

On the 10th of October, 1958 the practice of accepting the medical certificates from the private practitioners for the purpose of sick leave pay for the open vote employees and the Junior Staff was discontinued. On 1st of December, 1958 the Panel of doctors scheme for Senior Officers was discontinued.

As the result of the Council's above two decisions, all the open vote employees numbering about 10,000 and Junior and Senior Staff numbering 3,500 are now under the medical care of the three staff dispensaries.

Staff

No. of Medical Officers	..	5
No. of Hospital Assistants	..	11
No. of Clerks	..	5
No. of Attendants	..	10

During the year under review, Doctors Williams, Nair, Weerakoon and Idicula resigned, and in the vacancies created by these resignations, Doctors Low Wah Lean, Joseph Stanley, Ong Cheng Hooi and Mukkerji were appointed.

A. C. S. RAJAN, M.B., B.S.,
Medical Officer i/c Staff.

PLAGUE PREVENTION

THE FOLLOWING IS A RETURN OF RATS CAUGHT FOR THE YEAR, 1958

Source	R NORVFGI-CUS		R RATTUS		R CON-COLOR		M MUS-CULUS		Croci-dura	Total Rats	Total Preg. Rats	Total Dead Rats	Fleas X. Cheo-pies	Fleas Others C. Fel-ix	Total Fleas.	Mite	T LEWISI		Average Fleas per rat	Remarks
	M.	F.	M.	F.	M.	F.	M.	F.									+ve	-ve		
City Health ..	951	2,452	34	64	182	360	170	47	204	4,464	245	140	4,933	..	4,933	684	..	..	1.1	..
Govt. Health ..	20	95	9	20	114	185	153	109	2	707	38	1	390	1	391	72	..	..	0.55	..
S.H.B. ..	31	57	84	136	7	17	..	2	..	334	22	1	175	..	175	31	..	..	0.52	..
Port Health ..	1	2	98	141	65	79	58	101	1	546	42	546	..	..	..	..	..	..	..	Fumigated H.C.N.
Total ..	1,003	2,606	225	361	368	641	381	259	207	6,051	347	688	5,498	1	5,499	787	..	..	..	..
Grand Total ..	3,609		586		1,009		640		207	6,051	347	688	5,498	1	5,499	787	..	..	..	..
Pregnant Rats ..		227		44		52		24			347									

All the Rats were dissected and none were found infected with Plague.
 As per Deputy City Health Officer's instructions, a total of 61 live rats, trapped in the City Area, were sent to D.A.D.A.H. Headquarters Singapore Base District. These rats handed to D.A.D.A.H. were not included in the above totals.

INFECTIOUS DISEASE NURSE'S REPORT FOR THE YEAR 1958

	MALAYS		CHINESE		INDIANS		OTHERS		TOTAL		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	T.
<i>(1) Home Visits</i>											
T.B. Patients first visits ..	24	..	46	..	46	..	2	..	118	..	118
T.B. Patients untraceable ..	3	..	11	..	6	..	..	..	20	..	20
T.B. Revisits ..	394	..	546	..	592	..	19	..	1,551	..	1,551
Total ..	421	..	603	..	644	..	21	..	1,689	..	1,689
<i>Home Visits</i>											
Contacts first visits ..	25	29	14	24	4	5	..	2	43	60	103
Contacts Revisits ..	13	14	13	8	5	7	..	..	31	29	60
Total ..	38	43	27	32	9	12	..	2	74	89	163
<i>Details of Above</i>											
Contacts Adults referred to T.T.S.H. for X-ray ..	1	10	..	5	..	5	..	..	1	20	21
Contacts Adults referred to S.A.T.A. for X-ray ..	..	..	..	..	..	..	..	..	..	..	..
School Children referred to School Clinic ..	10	6	5	4	3	3	..	..	18	13	31
Total ..	11	16	5	9	3	8	..	..	19	33	52
<i>Mantoux Tests Done</i>											
Adults ..	..	..	1	..	1	..	..	..	2	..	2
Children ..	17	14	7	10	7	5	..	..	31	29	60
Total ..	17	14	8	10	8	5	..	..	33	29	62
<i>Mantoux Tests Done</i>											
Positive ..	8	9	7	2	6	4	..	..	21	15	36
Negative ..	7	6	3	7	2	3	..	..	12	16	28
Total ..	15	15	10	9	8	7	..	..	33	31	64
Polio Investigation ..	4	3	33	46	5	6	2	2	44	57	101

ALICE TAN,
Infectious Disease Nurse.

